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OUR COUNTRY AND COLONIAL SUBSCRIBERS are requested to furnish any
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Subscribers are requested to observe this. The CHEMIST AND DRUGGIST in a Green Wrapper indicates that with that number the term of subscription has expired, and that no further numbers will be sent until the same has been renewed. We issue the notice very respectfully, not that we distrust our subscribers, but simply because we find it impossible to keep an immense subscription list like that we now have, extending to almost every town in the world, in order without an exact system like this.

Editorial Notes.

WE observe an announcement in the *Pharmaceutical Journal* of the retirement of Mr. H. B. Brady from the Council. Now, especially, that the Council in some respects acts for the whole trade, it is impossible in this journal to allow the event to pass without testifying to the catholic zeal and untiring energy with which Mr. Brady has laboured for the benefit, not of a class, but of the whole trade. He is young yet, and will aid us, we hope, for many years. Regarded as a champion by the "extreme left," and respected by the conservatives of the society, his opinion and voice will always carry weight. The retiring member evidently hopes that his substitute will be a metropolitan chemist, and the last election more than satisfied the most ardent advocates of increased provincial representation. We are only doing our duty as journalists in urging upon the voters, as the new Councillor, the claims of Mr. Williams, whose views on most questions are, we believe, coincident with those of Mr. Brady, whose recorded attendance on committees last year exceeded that of any other member of the Council, and whose accomplishments and competence for the position are well known to all who are acquainted with him.

CAN anybody induce Monsieur Gambetta, the energetic Minister of the Interior in France, to transfer his services in that capacity from his native land to ours? The gain would probably be mutual. France at any rate would be benefited; and if M. Gambetta were set to extract order from the present chaos of our new postal regulations, the task would assuredly tame him down considerably, while it is hardly possible that even he could increase the confusion now existing, and he might by chance reduce it. As every one knows, great and important changes have recently been made in this department, ostensibly to benefit the public;

but concessions have been granted in such an ungracious manner, as to take from us all opportunity of indulging in gratitude. "Honour to whom honour is due." To the unremitting energy of the "Hapny Hecho" the public mainly owes the postal advantages which have been secured. For some time the Treasury stood firm, and reckoning up the chances one might have thought the fight hopeless on the side of poor down-trodden liberty, represented by the *Echo*. But our contemporary was resolute; and following the advice of Lincoln, kept "pegging awny" until at last it got the Government down, and dictated terms. But then, as we imagine, it occurred to some gallant minister, Mr. Lowe presumably, that to grant exactly what was wanted would be too humiliating; and to this heroic sentiment is due the strange and incoherent medley of arrangements concerning Newspaper, Pattern, and Letter Posts, which in one way or another have of late worried us all. We can on no other hypothesis understand why blows and benefits should have been so mixed up in the recently-published postal regulations. The limitation of the pattern post is a great commercial inconvenience, and chemists will as much as any class miss the advantages hitherto offered by this means of conveyance of small parcels. Newspaper arrangements are altogether entangled. For instance, the *Chemist and Druggist* is not now a newspaper at home, while the *Pharmaceutical Journal* is so regarded, although the position has been exactly reversed for many years. This does not affect our readers, but it affects us, as the rate for postage is three times as much for us as for our contemporary. We are still, however, sent as a newspaper to Hong-Kong or San Francisco; and, thankful for small mercies, we acknowledge with much satisfaction that our legislators have not interfered with our habit of sending out the *Chemist and Druggist* neatly stitched as well as cut, as they have with the weeklies. The regulation prohibiting the stitching of newspapers is either too wise or too senseless for our comprehension. After resisting the petition to carry four ounces of printed matter for $\frac{1}{2}$ d., instead of 1d., it was strange that all at once the Government should offer to carry six ounces of newspaper for $\frac{1}{2}$ d., avowedly for the benefit of one journal. This, however, no one complaius of; what we regret is that so many new limitations have been insisted on with regard to the book, newspaper, and pattern post. And then we come to the postal cards. Opinion is fairly divided as to whether these are or will be a boon or a curse. As far as we know, no one asked the Post Office for them; was it a grand effort of spiteful genius, the bitterness of which we shall feel to our dying day? Certainly our experience is that the public generally does not take kindly to the novelty; and even advertisers, who hailed them as a special providence for themselves, are not quite so enthusiastic about them as at first. By right-minded persons they are used for many kinds of communication, and are very satisfactory; but so large a number of the minds of the human family are left-handed, and this class is so delighted with the opportunity of indulging in revenge, malice, coarseness, or stupidity, at the small charge of one halfpenny, that they have managed already to throw discredit on a system which ought to be a great public benefit. On this subject we may mention that complaints have reached us with specimen cards sent out by wholesale firms, giving quotations of trade prices. There is no great crime in this, but we certainly agree with our correspondents in thinking it unwise. The wholesale houses will very soon discontinue the practice if they find that by offending their customers they do themselves more harm than good. One other remark we have to make in conclusion. We want an authoritative and precise explanation, not yet clearly given, of what may and what may not be

sent through the post for a halfpenny. We have frequently to pay for letters which have been sent us by correspondents who have evidently not understood the new regulations. Invoices, we believe, may go for 3d., if unsealed, but 1d. will be charged if anything more than the bare invoice, e.g., "Per L. and N. W. Ry." is written on them. Circulars too are passed through the book post, "if all or nearly all" the contents are lithographed or printed. This is rather too vague, though it is easy to understand the general meaning of what is and what is not allowed by the clause. Finally, we want a new one-syllable word for "halfpenny," which is one of the clumsiest in our language. Why not take this opportunity of immortalizing the Chancellor of the Exchequer?

THE Chemists' Ball is, we understand, fixed for January 25th, 1871, and unusual lustre is likely to be shed over this anniversary of its occurrence by the presence of the Right Honourable the Lord Mayor of London. His Lordship has consented to be one of the stewards.

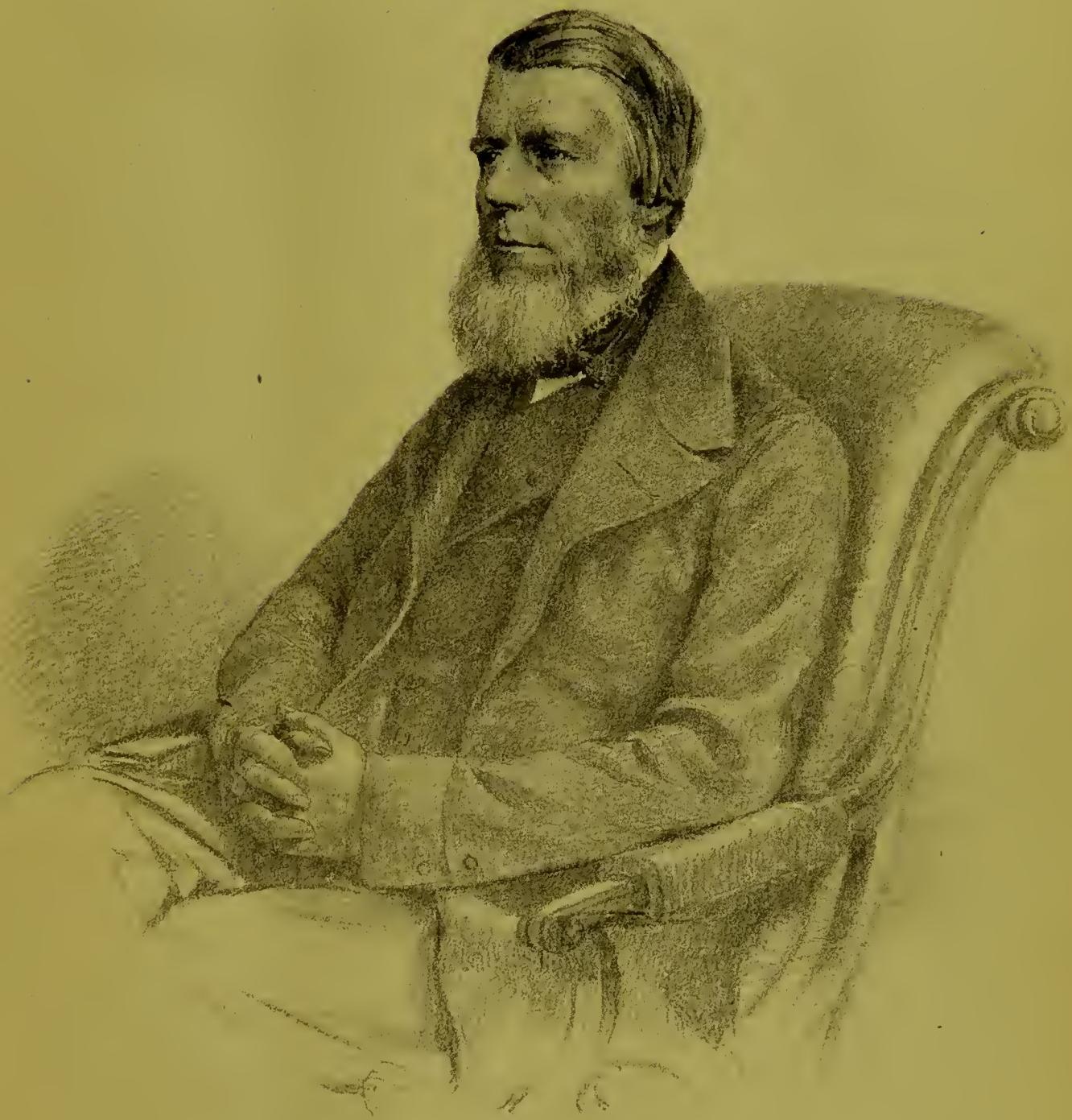
OUR note on the leech importers of London last month, we believe, was effectual. We cannot vouch for the accuracy of our report, for the confederacy did not assist us in getting information; but we believe we are right in stating that in consequence of our remarks, unanimity, which was indispensable, could not be obtained, and though some valiant members of the league advocated the desperate policy of defying our influence, wiser counsels prevailed with the majority, and consequently the scheme of fixing on leeches a fictitious value has fallen through.

AT the evening meeting of the Pharmaceutical Society, held at Bloomsbury-square on November 2nd, the first of the season with the exception of that which we reported last month, when Mr. Schaeft delivered the inaugural address, there were rather fewer than fifty gentlemen present. This number included two members of the Council, both of Leiden, the professors connected with the Society, not more than half-a-dozen gentlemen in business, and a sprinkling of students and assistants. Mr. J. B. Barnes had gone to considerable trouble to prepare a paper on the preparation of fresh infusions, which should have called forth an interesting discussion, and those who were present evidently appreciated his pains, and recognised the value of his experiments. Surely the pharmaceutical chemists of the metropolis, who claim to be so much interested in the advancement of their profession, could make a more respectable show than this once a month; and we think, too, that occasionally the benches might be graced with the presence of one or two of the councillors from the provinces, especially as it would seem that in that hope these meetings are fixed for the evenings following the days when council meetings occur.

MR. BARNES's experiments on infusions will be found recorded on another page. In the course of the discussion that followed the reading of this paper, the chairman (Mr. Haselden) remarked with regret that infusions were not prescribed so freely as in former days. There is no doubt, we suppose, that this is the case, and we imagine that dispensers themselves are somewhat to blame for this neglect on the part of physicians. We shall not now consider whether the employment of concentrated infusions should be regarded as a dereliction of duty, but shall con-

fine our criticisms to those establishments where it is the rule always to make these preparations fresh. This is the custom at many, if not most, of the largest dispensing houses, and from that practice, it is presumed that no pains are spared to ensure the minutest accuracy in dispensing, and the possession in the mixture of that perfect aroma which the proprietors believe can only be obtained by taking this extra trouble. Why, then, is it that in establishments where this belief and practice obtain, the theory is not carried out perfectly? It is almost invariably the case that the dispenser devotes a considerable portion of his ingenuity to the discovery of some method whereby to save himself the trouble of constantly employing his infusion-jar. At the very discussion which has occasioned these remarks, some suggestions were offered, by the adoption of which infusions might be preserved for a considerable length of time. And whenever the subject is brought forward some one tells the plan he adopts whereby his infusions are kept fit for use for several days, perhaps weeks. For ourselves, we condemn such economy most thoroughly, and cannot help wondering why these who practise it cannot be logical and go direct to concentrated infusions. The saving, apparently effected in material is a delusion; it does not pay for the rent of the space occupied by the bottles which contain the rubbish. The saving in labour is one not creditable on the part of conscientious pharmacists to make. We have no hesitation in asserting that it would be better to use concentrated infusions than fresh ones, which have been made hours, days, perhaps weeks. Our ideas are, perhaps, Utopian; the larger houses will ask with a smile, "Would you have us prepare infusion of gentian, for example, of which we use some gallons every day, fresh for every prescription?" We reply, "Most certainly, if you profess to use fresh infusion at all; and the more frequently the trouble occurs, the more pleased you ought to be." How would these gentlemen like to come to tea with us if we offered them a cupful of that infusion in the evening which we had prepared in the morning on the chance of such an emergency. Chemists ought to know that the process of decomposition goes on without observation, and they ought not to wait until the result is palpable and disgusting before they decide that their treasured infusions are no longer fit for use.

MR. CHARLES HEISCH reports some important experiments on water contaminated with sewage, the bearing of which is to simplify very much its qualitative analysis. A manufacturer of lemonade finding suddenly that he could not keep his beverage more than a day or two, and unable to understand the reason of this, called in the aid of Mr. Heisch. The mischief was traced to the water, and it was afterwards discovered that an almost inappreciable quantity of drainage had reached the well which was being used. Following up this clue, Mr. Heisch believes he has discovered a method whereby sewage almost in the smallest possible quantity may be traced in water. Six drops of clear sewage were mixed with 10,000 grains (rather more than a pint) of West Middlesex and New River water. To six ounces of this mixture ten grains of pure sugar were added. The same quantity of sugar was also added to six ounces of water without any sewage. In from twenty-four to sixty hours the first mixture became turbid, and revealed in the microscope certain forms of cells grouped in a manner which Mr. Heisch regards as characteristic. The water without sewage remained clear and sweet. One drop of fresh urine in 10,000 grains of water yields a mixture which will keep for several weeks, but the addition of sugar will



Henry Deane.

induce the appearance of these cells in from twenty-four to forty-eight hours. Mr. Heisch states that filtering through the finest Swedish paper did not remove the germs, nor was boiling for half an hour any more effectual. Filtration through charcoal seems alone to have been found capable of removing the impurity.

THE general return from the Court of Bankruptcy for the year ending the 11th of October, 1869, shows that the number of adjudications of bankruptcy was 10,396 in 1869, being 1,201 more than in 1868; and that in 5,804 cases the debts did not exceed £300. The total amount realized under the several bankrupts' estates was £644,403. In 1,695 bankruptcies there was a dividend, and in 7,346 there was no dividend; the corresponding numbers of the cases in 1868 were 1,714, and 6,489 respectively. In 953 cases the dividend declared was less than 2s. 6d. in the pound, and in 1,581 it was less than 10s.; in 114 cases it was above 10s., and only 38 bankrupts paid 20s. in the pound. The proportions of these numbers do not differ materially from those of 1868. There were 4,668 trust deeds registered in 1869, as against 8,045 in 1868.

THE first course of Cantor Lectures for the ensuing session of the Society of Arts will be "On Artists' Colours and Pigments," by Frederick S. Barff, Esq., M.A., F.C.S., and Fellow of the Cambridge Philosophical Society. It will consist of five lectures, to be delivered on Monday evenings, the 21st and 28th November, and the 5th, 12th, and 19th December, at eight o'clock. These lectures will treat of—The Nature of Colour; Chemistry and Manufacture of Colours and Pigments; Vehicles and Media used in Painting; Fresco and Silicious Painting; Destructive Influences on Colours, etc.

WE discover from the American pharmaceutical papers that the message sent from Baltimore to Liverpool during the simultaneous meetings of the two great gatherings of pharmacists, was not in reply to the one sent from these shores, but was despatched before the arrival of ours. This is a pleasing fact to note, and it is curious to observe the coincidence of the expression "fraternal greetings" in each message.

CONSPICUOUS among the sweeping changes produced by recent legislation is the growing number of noble bankrupts, who are now becoming almost as thick as blackberries. From the creation of our order of nobility until the year 1869, it was impossible that members of the peerage could have been rendered amenable to the ordinary laws of debtor and creditor. Being held to be always in the capacity of councillors attendant upon the Crown, their persons were sacred from arrest; and being neither traders, nor supposed capable of being insolvent, the whole power of the Bankruptcy Court was an empty threat so far as they were concerned. The people's Parliament has changed all that, and how much need there was for the change the immediate consequences of the new Act very painfully disclose. The historically famous name of the Duke of Newcastle led the van, and not all the wealth of the Scoto-Dutch Hopes, added to the large patrimonial estates of the Pelhams and Clintons, could keep its possessor from the fate of an unsuccessful butter-merchant. Lord Winchelsea followed, and now another peer is added to the list. Lord de Manley shows that a sounding Norman title does not lift its owner above the wheel of fortune. If in so short a time these, and many more imminent, have had to "shut up shop," it is obvious

that our hereditary Legislature is far from being in a good way. The Commons ostracises bankrupts; the Lords have not yet been called to provide for the contingency. What they will do remains to be seen, but one thing is certain—bankrupt peers can never lead solvent plебians.

AN important visitor at the meeting of the American Pharmaceutical Association at Baltimore, in September, was a Mr. William Saunders, of London, who is reported to have taken a very active part in the proceedings. We ask, with all respect, who is Mr. William Saunders when he is at home? Surely he has been rather too modest in London, or we should have heard of him before this. Neither does his name appear in the Pharmaceutical Register nor in the Directory.

IT has become a rather popular amusement among scientific gentlemen to abuse Mr. Lowe. The right honourable gentleman has lately offended the Royal Astronomical Society and the *Daily Telegraph* (what queer company adversity brings!) by the refusal (or, rather, expected refusal, for it was afterwards acknowledged that the Government had never been properly asked) of two thousand pounds and a ship to take out a certain number of observers of the eclipse on December 22nd. Why should not chemists and druggists agitate for a subsidy from Government to the railway companies to take them to Edinburgh next year, when the British Pharmaceutical Conference meets in that city?

MR. BADEN BENER read a paper at Liverpool on the "early training of pharmacists," wherein he ably advocated an idea which has occurred to many minds, but which no one has yet had the courage or the capital to carry out. The best way to produce good chemists, thinks Mr. Benger, is to educate them with a view to their future pursuits while they are young, and before they actually commence their apprenticeship. We fully agree with this, and hope some day to see the idea worked on a respectable scale. A school not inferior to average middle-class schools in other respects, but managed by a gentleman himself acquainted with the educational requirements of pharmacy, would win the confidence of parents who intended their sons for such a business; and we are not sure that embryo surgeons and physicians could do better than undergo a few years of this early curriculum. Surely, too, chemists themselves would give preference to a candidate for apprenticeship who had thus got the root of his future studies in him. Looking at it therefore from these opposite points of view, and seeing how fully such a scheme would meet certain well-appreciated wants, we cannot doubt that, as a commercial venture, an investment in that direction would be successful. If so, a strong argument has been established for the need and value of such a school. The idea, however, is not popular among certain gentlemen, whose judgment is of the highest character. They think the scheme visionary and impracticable, and even worse—likely to accomplish more evil than good. They think nothing should be done to risk in the slightest degree the position of Latin, Greek, Euclid, and the multiplication table in the curriculum of a boy's education; and they think it would spoil a boy for life if he learned the barest rudiments of his business too young. We do not by any means advocate a system of forcing; on the contrary, we would obviate this by rendering it comparatively unnecessary. It is with a shudder that we hear apprentices recommended to devote the rare hours of their walks in the country to the collection of botanical specimens. To one

out of a thousand, perhaps, this may be a pleasure; but to most it would make the walk hateful. We know how desirable it is to have an acquaintance with botany, and we know too how easily a taste for that pursuit may be acquired if implanted in school days as a pleasure, not as a task. We heard a long and fruitless abstract discussion at Liverpool, on "Facilities for Pharmaceutical Education," and one after another the speakers inculcated the importance of giving the right bias in youthful days. Why stop on the road to which this theorem, fairly applied, logically leads them? Never will the opportunity occur again so well to place a lad on the right track, as in the days expressly devoted to this purpose. This is all we suggest; we do not advocate that schoolboys should learn how to spread plasters, nor would we interfere for an hour with their classical or mathematical studies. All we want to see is a school established where the probable future occupations of the scholars should never be forgotten; and we say again, that if well conducted, it would be a great gain to pharmacy, and almost without a doubt, a profitable investment to its promoters.

WE have the pleasure to announce the early publication of our Almanack and Diary (1871). All the matter is now in the hands of the printers; and we expect to receive bound copies by the 22nd or 23rd. Foreign subscribers will be supplied first, and those at home in the rotation in which orders are received. We have perfect confidence that every chemist who buys this work will be thoroughly satisfied with it. The diary portion will be found printed on superior paper, and well arranged for prospective as well as retrospective memoranda. In order that this part of the work should be done as handsomely as possible, we engaged Messrs. Letts, Son, and Co. to print it, their experience of such matters being, doubtless, the largest in Europe. For the literary portion Dr. Attfield and Mr. Tilden have written first-class practical articles on "Pharmaceutical Chemistry, 1870," and "Gravimetric Analysis," respectively; and Mr. S. W. Rich, who is known as a contributor to these pages, has prepared with great labour a most valuable article, detailing concisely the chemical tests for nearly all the medicinal substances in general use. The rest of the book will consist of legal and commercial information, compiled with express consideration of the requirements of chemists and druggists. We have been encouraged by the success we have met with in the past two years in the publication of this annual, and this time have allowed ourselves but a very small margin of profit, hoping that as we have endeavoured to meet the wants of all chemists in such a book, all chemists will make a point of employing our work as their recognized desk companion.

DR. FRANKLAND, referring to the agricultural experiment with the manure obtained by the A. B. C. process, recorded in these pages last month, remarks that "thirty shillings was not the 'market value' but the 'chemical value' which the Rivers' Commissioners put upon the A. B. C. manure, and they pointed out that the two values differ very widely in weak manures; thus the Leicester lime manure has a chemical value of about 14s. per ton, but it sells for 1s. per ton."

ON the subject of prescribing druggists, "A Pharmacist" writes the following sensible letter to the *Lancet* :—

"Sir,—Your correspondent, 'Medico-Chirurgus,' justly sneers at a certain chemist and druggist who had made an exhibition of his own ignorance of anatomy, and whose

diagnosis of disease had been singularly incorrect. So far good. But your correspondent goes on to say that whilst the chemist's ignorance of these subjects is only what might be expected, the medical man is, from previous training, qualified to dispense. We pharmacists, judging from the evidence constantly before us in the written prescriptions of the profession, have been brought to a different conclusion. To dispense some of these prescriptions would certainly require more manipulative skill than is possessed by any of our craft. The impossible pill masses and unmixable mixtures ordered puzzle us sorely. The following prescription came into my hands recently :—

R. Acid. gallic, 3ij.
Sp. vini rect.
Aqua, ad 5v.
Ft. solutio.

To be used as directed. Dispensed as prescribed, this medicine becomes in a few minutes a perfectly solid mass, only to be got at by the patient by breaking up the bottle containing it. A judicious combination of sp. ammon. arom. with mineral acids is occasionally prescribed, apparently under the impression that it is a valuable remedy. Trifling slips of the pen, such as writing 'liq. morph. acet.' instead of 'liq. ammon. acet.'—the last I remember noticing—are of common occurrence; and the dispenser often saves the prescriber the disagreeable consequences of manslaughter by correcting excessive doses, putting himself to the expense of a cab probably to see the doctor while the patient waits, and getting for his pains generally less than 'thank you.' We find it hard to believe that these gentlemen who do not know how to prescribe would make very reliable dispensers. I do not think I should be very wide of the truth in saying that the chemist's knowledge of medicine and prescribing is, as a rule, equal to a medical man's knowledge of pharmacy and dispensing."

OBITUARY.

We much regret to announce the death of Mr. William Rathbone Taylor, of the highly-respected firm of Bourne and Taylor, druggists' sundriesmen. Mr. Taylor died on the 14th of October, at the age of 56, nearly half of which period he had been engaged in the business we have mentioned. A genial Christian gentleman, the memory of his kindly manners and strict honour—unhappily, almost old-fashioned in this commercial age—will not soon pass from the remembrance of those who had communication with him.

THE FLAX-LINTS OF COMMERCE UNDER THE MICROSCOPE.

THE following is an important paper read before the British Pharmaceutical Conference by Mr. T. Greenish, F.R.M.S. We also append the discussion that followed. Mr. Greenish said:—"The introduction of machine-made lint, which dates from about 1847, has, to a very great extent, superseded that made by hand. The latter had many defects, and the former possesses many advantages. Machinery, by lowering the price of lint, has very much increased its consumption; but there still lingers in the minds of many persons the feeling that there is no lint like that made by hand, and also a suspicion that the so-called "flax-lints" contain a mixture of cotton, varying in the samples of different makers, but objectionable in all.

Just at the time when I was engaged on this subject, a circumstance occurred which will serve to illustrate my remarks. A medical man called on me for some lint. I

unrolled a packet of Taylor's Super A 1 flax lint. He objected to it, remarking that it was mixed with cotton, and also that the presence of cotton in lint detracted from the value of the lint as a dressing for sores; and this was especially the case when applied to a blistered surface. Now here was a question of fact and also one of opinion; and to determine one at least of these—the presence of cotton, or otherwise, in samples of professedly flax lint—was the object I had in view, and I have thought that the subject possessed sufficient interest to justify me in bringing the results under your notice.

A difficulty met me at the outset. I had purposely discarded all "*cotton lints*,"—they did not come within the scope of my inquiry; and to examine every sample even of those labelled "*flax lints*," whether from wholesale houses or retail establishments, would occupy more than the limited time at my disposal, and be of no practical value, for the absence of the maker's name left no means of identification. Here, for instance, is a sample of lint. The packet had a very pretentious label—"Superfino Lint," etc. It does not profess to be flax, nor does it say that it is cotton, neither has it the maker's name. Its composition is about half cotton and half flax, and the same remark will apply to the linted surface. I have examined a good many samples labelled flax lints, from different sources, but shall illustrate this paper by reference to those of a few well-known makers.

No. 1 Sample.—I will commence with the lint to which objection was made, Taylor's Super A 1 Flax Lint. I certainly was somewhat startled to find that it did contain cotton. By taking a piece of this lint and detaching from it a few threads, without reference to any particular part, the presence of cotton may be detected; but when the sample is subjected to a more methodical investigation,—when, for instance, the warp is separated from the weft which crosses it at right angles, and they and the fluff on the surface are examined,—it is found that the "warp" consists of a yarn of loose linen fibre, and the "weft" of a closely-twisted thread of cotton, and that the fluff on the surface contains no cotton whatever, being composed entirely of flax. I use the words "yarn" with reference to the flax warp, and "thread" to the cotton weft, to convey a tolerably correct idea of their relative size and condition in the fabric. A stray fibre of cotton may be found on the surface, but it is not there in any appreciable quantity. The cotton would appear to have its place and value in binding together, so to speak, the flax yarns; but it forms no part of the linted "pile," consequently all the fibres coming into contact with a wound are pure flax. It is just possible that the presence of a thin thread of cotton as a weft, may make the material lighter and more porous, and assist in producing a larger linted surface to a given weight of lint. The view adopted is probably borne out by reference to the next. I think, therefore, that we are justified in considering this sample as a flax lint.

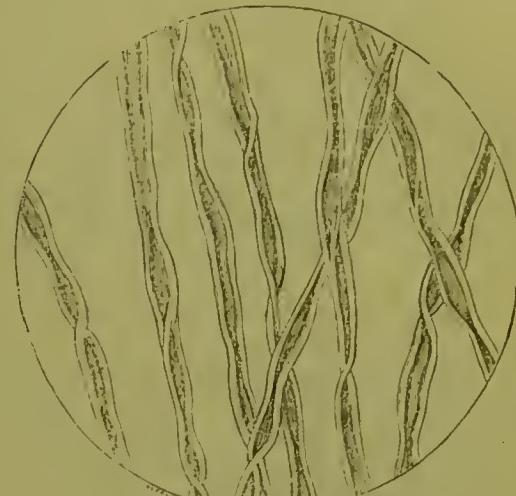
No. 2 Sample is Maw's Ellesmere Lint, composed entirely of flax in warp and weft, and consequently the fibres of which the linted surface is composed have no mixture of cotton. It is a coarse lint as compared with some others.

No. 3 Sample is Robinson's, of Chesterfield, Flax Lint. Warp flax; weft cotton. Surface for the most part flax.

No. 4 Sample is hand-made lint, composed entirely of flax. It has very little fluff on the surface.

The second question may now be considered. Is the presence of cotton in any quantity really objectionable when forming part of the linted surface? It would be difficult for me by any direct experiment to determine this point. I must leave others to speak. I shall only quote one authority bearing directly on lint, and his remarks I think embody the opinions of most of those who have alluded to the subject. Erasmus Wilson, in his treatise on "Healthy Skin," says, in substance, "that he attributes the softness and smoothness of linen to the roundness and pliability of its fibre; the cold feeling to its being a good conductor of heat,—the porosity of its fibre rendering it very attractive of moisture, absorbing it freely, which, as water is a conductor of heat, removes it rapidly from the body. On the contrary, 'cotton is a bad conductor of heat; it does not absorb moisture to conduct the heat away. It wants the freshness of linen; it is not, like linen, composed of fibres which are perfectly rounded, but, on the contrary, its fibres are flat and have sharp edges, which are apt, in delicate skins, to

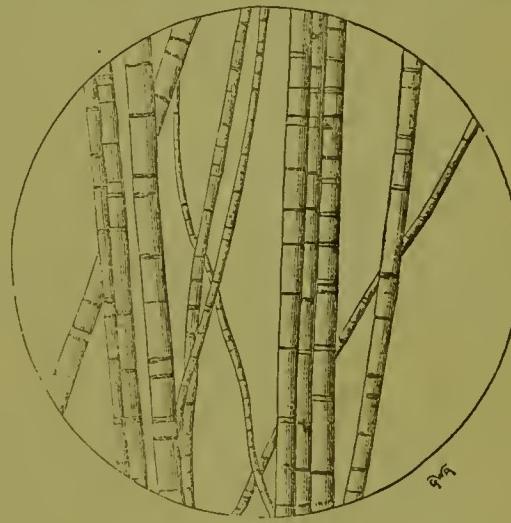
excite irritation. It is on this account that we carefully avoid the application of cotton to a graze or wound, and



Cotton.*

employ for such a purpose its softer and smoother rival, linen."

You will observe that his objections to cotton apply,



Flax.*

in the first place, to its being a bad conductor of heat, and, in the second, to the sharp edges of the cotton. His first objection may be valid, but the second has no foundation in fact. Cotton has no sharp edges; its fibre may be compared to a tube of some thin material collapsed, and with rounded edges, ribbon-like, but more or less twisted. The fibre of flax is rounded. There is certainly a difference in the feeling between linen and cotton when applied to the skin, to whatever cause this may be attributed.

The superiority of linen to cotton as a dressing for wounds is generally admitted; and I think, therefore, that we may accept as a fact that cotton, in so far as it forms part of the linted surface, detracts from the value of the lint. But how is the occasional preference for hand-made lint to be explained? On carefully comparing a piece of hand-made lint with that made by machinery, both being flax surfaces, I think it can only be a question of the relative quantity of "pile" on the surface of either sample; and a reference to the next lint would seem to support my views.

No. 5 Sample is "Charpie," a kind of lint used in the German hospitals, with reference to which I will quote a paragraph from one of the newspapers:—"A Good Hint.—'Charpie' is a game at which all ladies should now be playing. It is played in this way. Tear pieces of linen into fragments about three inches square, and draw out every thread separately. It is capital fun, especially

* The woodcuts represent the appearance of the fibres by transmitted light.

adapted for the delicate fingers of young ladies, who can arrange parties for it at each other's houses; and the best of all is that this charpie—a kind of lint—is invaluable to the poor wounded soldiers, whose sufferings, for the want of such a thing, are often excruciating and intolerable." These detached threads are scraped into fluff, which is applied first, and then covered with the piece that remains, from which the threads have been drawn in one direction only.

No. 6 Sample is Marino Lint, which, through the necessities of the present time, has acquired some notice. For this sample I am indebted to the kindness of Mr. Martindale. In a letter to the *Lancet* of September 2nd, the maker says, "Marine lint is made from a variety of fibres (generally vegetable), prepared by a peculiar process, and will retain its disinfectant qualities and tarry fragrance for many years." I take a piece of this, and clean it by several immersions in methylated spirit. Its tar and its mystery disappear together. It is composed of flax or hemp fibres; in fact, it seems to me to be nothing more than "tow waste" passed through a solution of tar.

One word more as to the means adopted for the detection of cotton-fibre in combination with that of flax.

The microscope is perfectly efficient for this purpose. The value of polarized light in determining form and structure is well understood by the microscopist. I have availed myself of it in these investigations. By its aid, and with a little management in manipulation, every fibre of which the thread or fluff is composed can be told with unerring accuracy. In the examination of a sample of lint, I would suggest that in the first place a low power be employed to determine from the back of it the relative size of warp and weft, their closeness or otherwise; then that fibres from each and also a portion of the linted surface be examined separately by polarized light. By this means no specimen of lint can fail thorough investigation.

If I have succeeded in throwing any light upon, and investing with interest, the subject brought before you my time in the investigations and yours in listening to the results will not have been spent in vain.

I have here for distribution some lithographic plates of cotton and flax under the microscope, kindly supplied me by Mr. Suffolk, F.R.M.S., to whom I am indebted for much information and many kind suggestions on this subject.

The PRESIDENT said that referring the different qualities of cotton and flax lints to the microscopic structure was an exaggeration and a popular error. If any difference really existed in their relative merits, which many doubt, it probably was not because one fibre was flat and the other round, but because the cotton twisted by being wetted by the moisture from the wound, and by its movement caused the irritation complained of.

Mr. INCE remarked upon the very different practice of this country and that of France and Germany in the selection of lint. In common with many others, he had lately given up a good deal of time to making charpie to send to the seat of war. In France, charpie, made by pulling out each separate thread of a linen or cotton fabric, was sold by weight. The French and Germans will not use English lint because of the fluff, and large quantities sent out for the relief of the wounded have been returned to England to be exchanged for other articles. The new material called "marine lint" was highly appreciated.

Mr. MARTINDALE referred favourably to the experience of "marine lint" in some of the London hospitals. As an antiseptic dressing, a little loosely applied as a padding, placed above the ordinary lint dressing, it had been found efficacious, especially in cases where there was much fetid discharge, of which it was a most effectual deodorizer. The surgeons at St. George's Hospital spoke well of it, having used it for some time, and at the University College Hospital it had been used with success. Its application was found to add much to the comfort of the patient by destroying the disagreeable odour which is often so persistent from gunshot and other wounds. It had been largely used for this purpose during the American war, where it was first introduced as a surgical appliance.

Mr. BALDON regarded the prejudice against cotton lint as being without any good foundation, and stated that in the hospitals of Edinburgh cotton lint was used. As to the now "marine lint," carbolic acid was evidently its active agent.

THE PETROLEUM TRADE.*

NOW that the very important industry founded upon the great discovery and production of petroleum in the United States has settled down into a regular business, extending not only through our own country, but into distant regions of the world, the erroneous statements previously made concerning the prospects and condition of the business at the beginning, have ceased to perplex the public mind. Mere speculation has died away, and in its place a broader and more lucrative traffic has arisen, than even the most sanguine predictions made when "oil" was the chief exciting topic of the hour, could have foretold. The export from Philadelphia alone for the current season, foots up, according to the official statement recently given in the columns of the *North American*, of that city, to 35,938,779 gallons, to compare with 21,980,768 gallons in the same period of last year. This increase, amounting to 13,949,031 gallons, has been effected, notwithstanding the interruptions and drawbacks entailed upon the trade with Germany, and, indeed, with the whole North of Europe by the present war. \$9,250,000 is a goodly sum to count in the aggregate business of a single seaport, and such is the amount to be added, under the petroleum head alone, to the total of Philadelphia commerce.

At the same time the trade presents some curious features. For instance, while the export to England has fallen from 1,818,270 to 888,433 gallons, the quota of Ireland has gone up from 1,843,000 to 4,128,269, and of the British West Indies, from 77,191 to 97,251. Spain shows a heavy increase from 429,260 to 897,870; and Cuba from 27,755 to 49,737. Italy ranges far above all the rest, with 1,649,871 this year to set off against 417,130 in 1869. This is nearly a fourfold increase, and with it we may class the rise of the figures at Gibraltar from 1,294,771 to 2,297,151, since much of the quantity received at the port in question is decidedly intended for Italian consumption. The growth for North Germany is also quite noteworthy, considering the impediments to which we have already alluded. It runs from 4,666,146 to 6,887,016, and the news is of continually augmenting demand. On the other hand, Holland recedes about 320,000 gallons. In actual figures, Belgium stands at the summit of the list, although her proportionate gain is not equal to that of many other foreign States. Her figures are 5,214,678 last, to contrast with 8,632,855 for the present year.

As matters stand, this branch of commerce seems literally to have no closing limits. The general demand, like that for fuel, hourly increases, and we may congratulate our sister commonwealth upon the possession of a supply, apparently exhaustless, of a commodity which is becoming almost indispensable in every quarter of the globe accessible to commerce. As the exporting season draws to a close, the returns from abroad indicate continual extension of shipments for the coming year, and some Philadelphia experts put the probable money value of the quantities to be sent out from that port, at more than \$12,000,000. This estimate, taken together with the quantities consumed at home, conveys a very impressive idea of the importance to be attached to this peculiar article, so utterly unknown to us at the beginning of the present generation.

RECEIVED ACCOUNTS.

THE following remarks are from the pen of a solicitor, and are worth the notice of tradesmen:—

"Keep a thing for seven years, and you will find some use for it." This old proverb is often true with regard to receipts. It is difficult to say when anyone may burn a receipt with perfect safety. Some rely upon the Statutes of Limitations, and burn all receipts for simple contract debts that are six years old. But this practice is attended with some danger. In the case of a running account, on which part payments have been made, it may turn out to be necessary to prove payments that had been made more than six years ago. By the law of England, proof of payment lies upon the debtor who alleges he has paid. If a trader sells goods,

and brings an action to recover the price for which they were sold, he is entitled to succeed on proof of the sale and delivery of the goods. If the defendant relies upon the plea of payment, the burden of proving it lies upon him, and if he fail to prove it, the plaintiff recovers in the action. The advice which everyone ought to take is never to part with money in payment of a debt of any importance whatever, unless he reserves in his own hand evidence of having paid it. This advice may appear simple, but anyone of experience in the Courts must have learnt that it is not unnecessary. There are, of course, many dealings which are, by custom, of a ready money character, such as the obtaining of refreshments at a restaurant. In cases of this kind, receipts are unnecessary, and if ever a dispute arose, the oath of the person who paid, supported as it would be by a well known custom, would be held sufficient to uphold his plea.

The inconveniencce of the present rule of law with regard to proof of payment is evidently productive of great inconvenience. To persons engaged in large mercantile transactions, the accumulation of receipts must be immense, and the difficulty of discovering the one wanted on any particular occasion must be great. In private families, where the prevailing virtue may not be method, and where there are no trained clerks to docket and arrange, the annoyancce of receipts is still more sorely felt. Often are bills twice paid because the receipts, though carefully deposited somewhere, cannot be found when they are wanted. It is well worthy of consideration whether the rule of law to which we refer may not be modified, in some respects, with advantage to all classes of the community. Ordinary trade accounts are paid, or sued for, within three years from the contracting of the debt. If this is not the case, it certainly ought to be. Longer credit than three years, upon an ordinary trade account, is at least unfair to the trader, and even to the debtor it cannot be of general advantage. It seems to us that the law ought to presume payment in all trade accounts that are three years old, to the extent, at all events, of shifting the burden of proof from the debtor to the creditor. It is not advisable to enact that all trade accounts three years old should be barred by a new Statute of Limitations; but an Act should be passed providing that, after the lapse of this time, in all trade debts for goods supplied, the burthen of proof, on the plea of payment, should not rest with the defendant, but the plaintiff should be obliged to prove that the account has not been paid. These views have presented themselves to the writer as the result of a long practice in mercantile cases in the County Court.

SMITH'S UNIVERSAL MEDICINES.

JOHN Smith is ubiquitous—he turns up in the most remote and unheard-of places, and is engaged in all sorts of business. Recently he has taken to humbugging the people, and has chosen a first-rate field in which to work successfully and reap to himself large profits. Would you believe it, John has set himself up in the quack medicine business?—has opened a shop in fact, and intends dealing out cure-all medicines to the waiting thousands, who are only too anxious to avail themselves of John's medical skill. John has located himself in Syracuse this time, and hails from some wonderful institution dubbed the "New York Medical University," which is claimed to be located on the corner of Clinton-place, in New York. This establishment, John claims, has cured 26,340 patients in one year! Only think of that, invalids! John has very graciously opened a branch office of this wholesale-curing establishment at No. 89 Warren-street, Syracuse, and offers to cure anybody or anything, by wholesale or retail, who will only send him from five to ten dollars for his Universal Medicines. John advertises liberally, knows the advantage of printer's ink, and uses it unsparingly. John is a *chemicopathic* physician and surgeon, which shows that he is shrewd in his selection of a name—*chemicopathic* is good, very good, much better we fear than John's University medicines. John is down on all other kind of doctors, and gives them particular fits in the various "supplements" which he issues to the different country papers throughout the State. This is a good trait in John—it convinces everyone who reads them that John is right and understands his business, for what John can't cure,

it is useless for any other member of the Smith family to waste time upon.

It is needless for us to wish John success—he will certainly have it. People will be humbugged, and we suppose John might as well do it, with his "University Medicines," as any one else. It is a first-class way for people to waste money and trifle with disease, and we recommend all in search of such innocent amusement to apply to "Dr. John E. Smith, of the Syracuse wholesale branch of the New York Medical University," and dispenser of the cure-all-heal-over-recuperating-medico-quacko-chemicopathic University medicines.—*Bistoury.*

CHILBLAINS AND CHAPPED HANDS.*

THE returning cold, damp weather brings in its train the seasonable series of complaints, such as chilblains, chapped hands and lips, &c. These appear to be most prevalent just now, amongst those exposed to the inclemency of changeable weather, who possess a fair complexion, delicate skin, and other constitutional predispositions. To those especially liable to these tiresome and painful affections, we recommend as a preventive wearing kid skin gloves lined with wool, which not only keep out the cold, but absorb any moisture that may be upon the hands; and to rub over the hands before washing a small quantity of glycerine, which should be allowed to dry or become absorbed to a partial extent. When chilblains do manifest themselves, the best remedy not 'n'y for preventing them ulcerating, but overcoming the tingling, itching pain and stimulating the circulation of the part to healthy action, is the liniment of belladonna (two drachms), the liniment of aconite (one drachm), carbolic acid (ten drops), to collodion flexible (one ounce), painted with a camel's-hair pencil over their surface. When the chilblains vesicate, ulcerate, or slough, it is better to omit the aconite, and apply the other components of the liniment without it. The collodion flexible forms a coating or protecting film, which excludes the air, whilst the sedative liniments allay the irritation generally of no trivial nature. For chapped hands, we advise the free use of glycerine and good olive oil in the proportion of two parts of the former to four of the latter; after this has been well rubbed into the hands and allowed to remain for a little time, and the hands subsequently washed with Castile soap and tepid water, we recommend the belladonna and collodion flexible to be painted, and the protective film allowed to permanently remain. These complaints not unfrequently invade persons of languid circulation and relaxed habit, who should be put on a generous regimen and treated with ferruginous tonics. Obstinate cases are occasionally met with which no local application will remedy, until some disordered state of system is removed, or the general condition of the patient's health improved. Chapped lips are also benefited by the stimulating form of application we advocate, but the aconite must not be allowed to get on the lips or a disagreeable tingling results.

Dentistry.

THE following practical instructions on the elegant art of tooth-drawing have been written for us by a dentist of large practice, and will, we think, aid the novice, and perhaps save the unfortunate patient who falls into his hands some slight share of pain.

There are few operations in surgery that excite greater dread in the mind of the patient than the extraction of a tooth. Many will endure the racking torture of the tooth-ache for weeks, months, or even years, rather than submit to the operation; and we cannot wonder, when we remember in our early years the fearfully excruciating wrench of the old key instrument at an upper molar, and the half-hour's tug at the lower incisor with the primitive forceps by an M.D.

But science and mechanism have so greatly improved our appliances, that in the hands of a skilful dentist extraction is always safe, and since the introduction of nitrous oxide, almost a luxury.

It is needless, in the present paper, to discuss the relative merits of the key and the forceps, the latter having become the universally approved instrument. True, the key in its day found many advocates, and is even now greatly used by some of the old school. Nevertheless, the superiority of the modern improved forceps is generally admitted. In a dentist's case fully equipped, each tooth has its own instrument beautifully adapted to its peculiar form, so that in experienced hands failure is almost impossible.

No person should attempt so delicate an operation as tooth-drawing without first making himself acquainted with the anatomy of the teeth and the adjacent parts, as it is impossible to excel in extraction with the forceps, unless the operator is thoroughly conversant with the form of each tooth, the position and size of the fangs, the direction in which they stand in the sockets, and where they offer the greatest resistance. A full set of instruments should be procured, made by the best maker—unfortunately many inferior articles are in the market; the lowest priced not being the cheapest, but often defective in form and temper. The next essential is a good, firm, and easy chair, at such an elevation as to place the patient in a comfortable position to himself and the operator. The head should be placed in such a position that the light may fall direct on the tooth. Having chosen the proper instrument, place the left arm round the neck of the patient, take the lower jaw in the left hand, and with careful firmness proceed with the operation. The great object to be attained is the extraction of the tooth with the greatest rapidity and the least pain.

We will now endeavour to describe the mode of action with each tooth. For the central incisors, select the proper forceps, fit carefully to the neck of the tooth, rapidly press the edge of the beaks under the margin of the socket, and with a firm but slight twist of the wrist break the connection of the membrane, and with a direct pull withdraw the tooth. It is quite useless to attempt to remove the tooth until you feel it give way to the twist. The same directions apply to the lateral incisors, but they being much smaller, will require finer formed forceps. The canines, being likewise single-fanged teeth, require much the same handling, but being larger formed and deeper set they will require much greater force to break the connection with the alveoli. The incisors of the lower jaw being much smaller and closer set than the upper, require a different form of instrument. When the tooth is firmly grasped with a little outward pressure, and a very slight rotary motion, until it is felt to give way, draw it upwards without the rotary motion, applying at the same time a fair amount of force, but not so much as to dislocate the tooth. For the extraction of the bicuspids, whether upper or lower, the forceps must be similar to the others, but rather stronger in the case of those on the upper jaw. Having firmly pressed the blades into the process, the tooth must be moved outwards, inwards, and then drawn downwards. The side action is to destroy the adhesion with the sides of the socket, and must not have too great force in that direction, or the crown will be broken off.

The lower bicuspids are more tapering and longer, therefore the rotary twist will be required to detach the membrane before it is lifted out of the socket. The upper or superior molars have three fangs; the internal one is larger than the two external, the lateral fang being the smallest of the two. The separation of the fangs takes place as they enter the alveoli. These teeth require a peculiar form of instrument slightly bent at the point, the inner jaw having a hollow groove to fit the lingual fang, while the other jaw has two hollow grooves to fit the external fangs, and a slight point in the centre to fit between the fangs. Two forceps will be required for the upper molars, one for each side; the handles should be sufficiently long and strong to fill the hand and give confidence in the operation. The upper molars have their two external fangs parallel with each other imbedded in thin porous bone, but the inner fang is passed inward and upward, and is set in dense bone. To extract this tooth, grasp the head firmly, as for the other teeth, then place the forceps carefully on the tooth, press with great force, so as to force the point of the instrument into the process between the external fangs; the first motion should be slightly inwards to loosen the two fangs, and then with a downward and outward motion remove the inner fang. The first and second molar are so very similar in form that the same forceps will serve for each. The

dens sapientia, or third molar of the upper jaw, though the fangs often unite and form a cone, yet the same forceps will often do for them; but as they are frequently much smaller than the others, it is better under those circumstances to have longer instruments with a double bend near the joints and smaller beaks; they are sometimes more difficult to reach, but seldom require so much force as the others to remove them.

The first lower molar, which is usually developed about the sixth year, has five cusps or grinding points, and two fangs placed one behind the other with a slight lateral curve, separated from each other. The second is very similar to the first, but has four cusps, and the fangs are usually close together, and in consequence more easily extracted. The forceps for these are formed with two concave grooves in each jaw, with incurved points to grasp the neck of the tooth, and between the fangs; the handles are nearly straight, but the beaks are bent down at nearly right angles. We have seen many forms of forceps for this tooth, but the above are the most generally employed.

Great care is required in the extraction of these teeth, lest the point of the beaks should slip past the tooth and between that and the adjoining one; if so, it is possible that the two may be lifted instead of one. The forceps should be placed so that the points take the groove formed by the two fangs. Take the lower jaw in the left hand, press the instrument firmly down into the alveolus, and with a firm grip turn the hand inwards to break connection with the outer plate of the socket; then a turn outwards with a lift of the hand will bring out the tooth. Sometimes a difficulty will be met with from the curve of the fangs; they will often diverge, then converge, and thus enclose a piece of the process, in which case either a fang will be broken, or the piece of bone will be brought out with the tooth. At other times the fangs will spread so wide that there is a difficulty in removing the tooth from between the adjoining crowns, unless by a dexterous twist of the hand the points may be brought out at the side. But the greatest difficulty is in the placing of the forceps for the right side molars, and grasping the head of the patient at the sametime.

The inferior *dentes sapientia* being like the others in form to a certain extent, may often be extracted with the same instruments; but we prefer longer handles, and the points not quite so incurved. We have now fully described the course for extraction, supposing that the teeth have sufficient crown left to allow of a firm grasp with the ordinary instruments; but unfortunately the patient, dreading the operation, will too frequently wait until the crowns are so far decayed that the general form of forceps are utterly useless, and we must have recourse to the elevator or the stump forceps. The former we but seldom use, as the latter in one or other of its forms is generally applicable; it should be wide at the jaw, grooved, and made very sharp at the points. They are variously bent at the joints to suit the position of the stump. Having got a clear sight of the fang, place the points of the instrument on each side of it, then with firm pressure force the points up into the margins of the gums, and the stump will not unfrequently be forced into the jaws of the forceps. But as we cannot always, even with the best-formed forceps, succeed in removing the remains of a tooth, we are sometimes compelled to use the elevator. This is a spear-shaped instrument, convex on one side and concave on the other, pointed and very sharp at the edge, with a good firm handle.

In using the elevator, first wrap a napkin round the first finger of the left hand, place this on the lingual face of the gum close to the stump to be extracted, then with the elevator in the right hand insert the point with the hollow side to the stump, force it into the alveolus, and with a turn of the hand, using the adjoining tooth as a fulcrum, the stump is gently but forcibly lifted out. The operator should be very careful that the point of the instrument does not slip, or serious injury may be done to the mouth. In concluding these instructions, we may add that we never extract a tooth until we are fully satisfied that it cannot be saved by treatment.

Photography.

SKETCH OF PROGRESS.

THE *Scientific American* condenses from Dr. Vogel's *Lehrbuch der Photographie* the following brief history of the art, and we have pleasure in transferring to our columns the result of our contemporary's labours.

The art and science of photography has only existed twenty-five years, yet it is safe to say that in no other department of investigation has there been greater progress than in this. At first it was confined to taking portraits, and was looked upon as a trade rather than as a science; now its applications extend into every branch of human knowledge; it gives to the naturalist true pictures of animals, plants, and minerals, and to the geographer, plans for charts; by it the engineer in a few minutes can make true copies of the most difficult drawings, for the preparation of which the most skilful draftsman would require many weeks. In lithography and porcelain painting there is now extensive application of photography. The finest productions of artists are copied and easily multiplied, so as to be accessible to the poorest man, and in this way photography serves to cultivate the tastes of the people for art, just as printing disseminates a knowledge of science. There are few branches of science into which photography has not penetrated, and where its services have not been of the most signal importance.

The first attempt to take a picture by chemical means appears to have been in 1802, when Wedgwood and Davy immersed a piece of paper in a silver bath, and afterwards exposed it with a silhouette to the action of the light. A copy of the silhouette was thus obtained, but the picture was transitory, as the portions that had remained white gradually became dark in consequence of the silver salt still remaining in the paper, and thus the same agency that made the picture afterwards destroyed it.

About the same time with Davy's researches Niépce, in France, was attempting to take pictures with other agents than silver. He made use of a solution of asphalt in lavender oil. He sensitized a plate with this solution, and exposed it for hours in a camera. All the portions acted on by light were thus rendered insoluble, so that when the plate was worked in ethereal oil the picture became visible. Niépce as early as 1826 made pictures in this way, called heliographs, but the operation was too long and tedious to be of any practical value.

In 1829 Niépce entered into association with Daguerre, who had for some time been devoting himself to similar researches, and the two worked together for the accomplishment of the great result; but Niépce died in 1833, without witnessing the realization of his dreams. Daguerre continued the work undiscouraged by failure, undismayed by the scepticism of others, until, in 1838, he presented to three members of the French Institute—Humboldt, Biot, and Arago—permanent pictures taken by aid of light in an easy and practical manner. They created immense excitement. Everybody was anxious to become acquainted with the secret of their preparation.

Through the influence of Arago, Daguerre was induced to make known his process in return for a yearly pension of 6,000 francs, guaranteed to him by the Government. At the same time a son of Niépce received a pension of 4,000 francs. The 19th of August, 1839, was appointed for making known the secret of the method at a meeting of the Academy of Sciences, and the rush for seats was tremendous. The hall was soon filled to suffocation, and large numbers crowded the courts and blocked the streets, eager to catch the first news of the wonderful discovery. The story was soon told, and the printing press rapidly spread the intelligence to all parts of the world.

Daguerre attained his object in an entirely different way from Niépce and Wedgwood. He employed the iodide of silver as his sensitive agent, which he produced by the action of the vapour of iodine on plates of silver. The action of the light on such an iodized silver plate after exposure in the camera, is not visible to the naked eye until it has been subjected to the action of the vapour of mercury. This latter operation is the distinguishing characteristic of Daguerre's discovery. While other experimenters sought to obtain pictures at once visible by the direct action of the

sunlight, he brought out invisible pictures by means of a secondary agent, now called the developer.

It is said, though not by Professor Vogel, that Daguerre found this developer by accident. Some old silver plates had been put away in a dark closet in which were numerous chemicals, and, among others, a bottle of mercury. On taking them out for renewed experiment, Daguerre, greatly to his astonishment, found that several of them showed distinct pictures. Here was the accomplishment of all that he had been striving to obtain; but what was the secret agent that had brought out the picture? The closet contained numerous chemicals, each of which had to be tried in turn, and when mercury was reached, and its vapours expelled beneath an exposed plate, the picture was developed, and the secret disclosed at the same time. We give the story for what it is worth, premising, however, that it is more probable that Daguerre aimed at a knowledge of the action of quicksilver by direct experiment, and not by accident. The new art was very properly named after the discoverer, daguerreotype.

At the same time with these discoveries in France, a wealthy Englishman, Fox Talbot, was occupied with attempts to make paper negatives, which he developed by means of gallic acid and some salt of silver. He published an account of his process in 1841, but the rough surface of the paper and the inferiority of the pictures to daguerreotypes left an unfavourable impression, and the method was soon forgotten. A nephew of Niépce, Niépce de St. Victor, recently deceased, substituted glass for paper, which he coated with sensitized albumen, and thus introduced glass negatives, and prepared the way for the use of collodion upon wet plates. Archer, in England, published, in 1851, a full description of his collodion process, which soon took the place of all other methods, and is now the one almost universally employed.

The solubility of gun cotton in a mixture of ether and alcohol was first made known by Dr. Maynard, of Boston, and as soon as the fact was published collodion was suggested as the best solution for fastening a film upon glass. The collodion process gave us negatives, and Talbot's paper enabled us to copy them and fix them. Thus by degrees the art was developed, until it reached its present high state of perfection. The great demand for cameras turned attention to that instrument, and very great improvement has been made in the construction of photographic lenses. Chemical agents of all kinds have been improved and purified, and are now manufactured on an immense scale. Some of these chemicals were formerly so rare that they could only be found in the cabinet of some university. Now they are manufactured by the ton, and their price has diminished more than a hundredfold. One of them, the hyposulphite of soda, is now suggested as a substitute for common washing soda in the laundry, so readily can it be obtained.

Veterinary Notes.

BY W. HUNTING, M.R.C.V.S.

LOCK-JAW OR TETANUS.

THE nervous disease known as tetanus is commonly called lock-jaw, from the fact that its most prominent symptom consists in more or less inability to move the jaws.

Tetanus may only affect a part of the body, most commonly, however, the whole muscular system is involved, presenting a condition of rigid contraction. Few cases cannot be traced to some injury, the exceptions being due to cold, &c. Punctured wounds of the foot by nails, injuries to joints, and to the eye stand amongst reported cases as the most common causes. The operations of docking and castration also account for many attacks.

Neither the situation, the extent, nor the pain of a wound seem to have any special bearing on the production of this disease, in fact, slight injuries and those which apparently heal quickly are as often followed by it as more serious looking ones.

The symptoms once seen can never be mistaken. The rigid state of the muscular system gives the animal a stiff, jointless appearance, the muscles of the limbs stand out in relief, the belly is "tucked up," and the tail somewhat

elevated. The slightest excitement, as the opening of a door, or approach of an attendant, aggravates this condition; the tail is thrown out horizontally, the head spasmodically raised, and the haw of the eye protruded. This protrusion of the haw on raising the head is a very marked symptom, it is due to the spasm of the muscles of the eyeball retracting that organ, and causing pressure upon the fatty mass in the orbit, which moves forward and carries before it the haw. As to the mouth, if we quietly insert a finger to excite movement it will be found either firmly fixed or just able to open, perhaps half an inch. There is an almost constant attempt on the part of the animal to open the mouth, which is accompanied by a profuse flow of saliva.

The nature of the disease is essentially nervous, the muscular condition being secondary. The fact that instantaneous cures have been made by a sudden shock indicates this. Again, in cases due to an injury, the operation of dividing the nerve leading from the part has been followed by immediate relief.

As in a hundred cases of wounds almost similar only about one is followed by lock-jaw, we may, I think, conclude that in addition to an exciting cause some predisposing state of the body, as yet not understood, is essential to its production. Though the local injury may be looked upon as the origin or centre of the mischief, the spinal cord soon becomes deranged, and then keeps up the muscular spasms, even if the exciting part be isolated by division of its nerves.

We may say, then, that lock-jaw depends upon some irritation of the extremity of the nerves, which is transmitted to the spinal cord, and then reflected to the whole muscular system. Experience has shown that if at the commencement the irritating spot be isolated by division of the transmitting nerve the affection is arrested, but that very soon the spinal cord is itself so deranged as to continue the evil of itself. This operation, then, is useless unless performed at the very outset.

The spasms in lock-jaw differ from those in cases of convulsions in having no period of rest; the muscles are in a constant state of contraction, never being relaxed, though occasionally spasmodically intensified.

The cause of death is exhaustion from the active state of the muscles, and from the inability of the animal to take sufficient food. A fatal termination may be accelerated by the animal's falling down, it cannot then rise without help, but lies on one side constantly plunging. Congestion of the lungs sets in, and death speedily follows.

Treatment.—From what I have said it will be seen that our duty is to search for any injury, and, if found, place it in the most favourable position. Wounds should be thoroughly examined, even if partial re-opening is needful to do so. Warm fomentations are then applied. A wound thoroughly healed had better not be interfered with, neither need we trouble with such if the attack be of any duration or intensity. The slightest excitement is an aggravation, therefore endeavour to avoid all such by having a darkened stable, containing if possible no other horses; let there be no visitors, and only one attendant. Never raise the head, and do not attempt to administer draughts or balls. There are some very mild cases—the jaws being only slightly affected—in which an exception to this rule might be made in favour of a dose of physic. The food should be such as requires no mastication. Boiled barley and linseed, oatmeal gruel, hay-tea, milk, etc. Bran mashes I do not recommend, they are only starvation in disguise. A little bran mixed with the other food is, however, a good plan, as it has a relaxing effect on the bowels.

As to drugs there is a rare field for choice. Mercury, opium, belladonna, hyoscyamus, alcohol, Indian hemp, aloes, digitalis, camphor, and prussic acid, have all been tried, recommended, and followed by instances of recovery. The same may be said of copious bleeding, blistering the spine, burying up to the neck in a hot manure heap, driving blindfolded over a cliff into a river, and firing a gun off near the ear. Perhaps I had better not say the last three have been recommended; they have been successfully tried, and they have, like the drugs above, been unsuccessful. Till lately, I think I may safely say, every plan of treatment had but a very small percentage of successful cases.

A few years ago the late Mr. John Lawson, of Manchester,

recommended a plan of treatment consisting of perfect quietude, and the administration of prussic acid. His success, the reports of veterinarians, and my own experience, leads me to strongly advise the same plan. The acid is given in half-drachm doses twice a day, and, not to annoy the animal, is injected into the back of the mouth through a long tube. An ordinary india-rubber enema syringe is fastened to about twelve inches of small gutta-percha tubing; it is filled so full of water as just to admit the acid, which can then be thrown into the mouth with the smallest amount of water.

A very bad case should, by way of security, have slings placed loosely under it, as the process of raising a fallen patient is not only difficult, but an aggravation. Both aliment and medicine may be given sometimes with advantage per rectum. In such case the dose of a drug should be increased about one-fourth.

About three weeks is the duration of a favourable case ending in recovery; it may be protracted to three months. A fatal case terminates in from three or four days to a fortnight. If an animal last a fortnight, and is moderately strong, recovery is probable. These data will enable us to judge whether the value of the animal is worth the trouble of treating, and whether it is not desirable to destroy at once the victim of so painful a disease.

CARBOLIC ACID IN RINGWORM.

I have lately tried the action of the above, and find it quite successful. I used the following mixture once a day for three days, and applied it with a small brush:—

Sp. Vini Rect.	} of each 5vij.
Glycerine	
Water	

Carbolic acid (pure) 5j.

Medical Gleanings.

THE amalgamation scheme of the Medical Societies of London has fallen through in consequence of the jealousy of some whose importance would not bear the severe test of extended criticism; thus a grand idea is lost, but the little men are saved.

Professor Huxley's and Dr. Bastian's controversy on "Spontaneous Generation," in our contemporary *Nature*, has quite reached the borders of literary courtesy, and both retire from the conflict unconvinced.

Electric Medicine—a kind of try everything, until the disease wears out or the patient dies—is now very fashionable in America, and will doubtless soon find favour in England among those who affect medicine as a pastime. So long as it is confined to the more harmless simples it will be a pleasant change from heroic remedies, but should the Ranunculaceæ or the Solanaceæ form the medicaments, the tryees may become sufferers.

Miss Garrett has permitted herself to be nominated as a candidate for the Marylebone division of the Metropolitan Education Board. Miss Garrett's abilities are so exceptionally great, when tested by the standard of either sex, that we may, in her case, at once put aside all controversy about women doctors, and say without reserve that she is an ornament to the calling that she has embraced.

The increase of scarlatina of late is really very alarming, and the disease, so far from showing any signs of abatement, is every day enlarging its area and increasing the number of its victims. In the two years 1863-64, we are told, scarlatina destroyed in England more than 60,000 persons; and it is probable that the epidemic of 1869-70 will prove to have been as severe. About 200 deaths recently occurred in one week from this cause in the metropolitan district alone. While we have had recourse to the most stringent regulations with a view of preventing the spread of cattle plague and infectious diseases amongst our herds, we have taken no pains whatever to limit or control the progress of one of the most fatal and terribly infectious forms of disease amongst ourselves. And yet, if there be a malady in the world about the causation of which there is less disagreement than another, it is this very disease, scarlatina.

Dr. Peter Hood relates, in the current number of the

Practitioner, the following two remarkable cases, which seem to show, he says, that even aged persons are sometimes allowed to die unnecessarily:—"Instances might be quoted of persons who were believed to be dead, but were recovered, and amongst them not the least remarkable was that of a celebrated west-country baronet who was laid out in his coffin. His old butler volunteered to watch his master's corpse throughout the night; but, most probably thinking the time would hang heavy on him, he invited a friend to share his vigil with him. The butler's only fault, as a servant, was his indulgence in stimulating beverages; and he did not omit, on this occasion, to have recourse to them. As the night wore on, the idea rose in the butler's mind that there would be no harm if he administered to his late master a glass of the brandy he and his companion were engaged in drinking, and he proposed it to his comrade, saying, 'He has been a good master to me for many years, and has given me many a glass, and I will do the same by him before he is taken from our sight.' He did as he said, and poured a glass of brandy down his master's throat, which had the instantaneous effect of recalling him to life, and he survived for many years. A somewhat analogous case occurred in my own practice some years ago. One evening, about eight o'clock, the coachman belonging to the Dowager Lady C. ran to my house and begged me to come to his mistress directly, for, from what the servants told him, he said she was either dying or dead. The distance was short from my house, and I was speedily there. Lady C. was in her bedroom, sitting in a high-backed chair, and behind it stood a medical man. His first observation to me was, 'Her ladyship is gone,' and indeed she presented all the appearance of death having taken place. Her face was deadly white and cold, her jaw had dropped, but her eyes were closed. I felt her pulse, and detected the faintest possible thrill beneath my finger, and I could only compare it to the tension of the finest cambric thread. Lady C.'s daughter-in-law was standing beside me, and I asked her for some brandy, which she immediately ran for and brought. I poured out a large wineglassful, and poured it over the tongue, and it ran down the throat as readily as if it had been poured into a jug. The moment it had reached the stomach Lady C. revived, gave a spasmodic gasp, opened her eyes, and said, 'Bring me a basin.' A basin was brought to her, and she at once vomited into it, bringing up her dinner, which had been only hashed hare. She as speedily regained perfect consciousness, and inquired of me, 'what I did there at that time of the evening?' At this time Lady C. was eighty years old, and she lived for five years afterwards."

At the close of a recent debate in Edinburgh, Professor Christison rose and said that, so far from "the highest lady in the land" being in favour of the medical education of members of her sex, the Queen wished it to be known that she was entirely opposed to it.

Mr. T. K. Beecher, in the *Bistoury* (American), tells us how to choose a doctor. He says:—We have read somewhere about "how to choose a wife," somewhere else about "how to buy a horse," and somewhere, too, "how to write a letter," or "make a garden," or "cure the rot in sheep,"—yes, we have read, "how to get rich," and how to do everything under the sun, except how to choose a doctor. Since we cannot find an article about how to choose a doctor, we will e'en write one. To be a doctor, one must first be a man, and a mean man cannot be a good doctor anymore than he can be a good minister or a good husband. And a really honest, large, and loving man, cannot make a poor doctor no matter what his pet *pathy* may be. To have good sense as a doctor one must have good sense as a man. If your doctor is a nincompoop about other things, you may be sure that he is a ninny as to medicine and surgery. If the doctor's office be untidy and vilo to smell of, you may be quite certain that he will come short of giving good council as to health and tidiness of body. If he be clumsy in hitching his horse, you may be sure that he is not handy at surgery or midwifery. If he be a groat, coarse, blundering fellow—careless of dress, a two-fisted, farmer-looking man, you may be suro that he will lack perception of those finer symptoms by which a good doctor is guided. If he slanders brother physicians, who profess

a different pathy, you may be sure that he is himself a quack. Good, earnest doctors are too busy to find time to slander their brethren or their rivals. It is all the same with lawyers, ministers, and teachers. The truly good and truly great do not detract from the reputation of others, they are generous and magnanimous even to rivals. If your doctor flatters you and humours your lusts and appetites, and helps you out of a bad scrape secretly, without reproof as if you had done no wrong, distrust him. If you can hire him to do or say what he would not do without the hire, beware of him. Good doctors cannot be bought. Your doctor ought not to be a single man. He ought to have a wife and children, and if you see that his wife respects him and his children obey him, that is a very good sign that he may be trusted. If your doctor tells you how to keep well, that is a good sign. You come to him with toothache, and he gives you kerosene and clove oil for the tooth, and at the same time suggests that you do not wash enough to keep well—that is a good sign. If the children like him, that is a sign. If you find him reading in his office, that is a good sign, and specially, if he be a settled, middle-aged man. If you hear him say, "I once thought so-and-so, but I was wrong," that is a good sign. If the doctor is neat and handy in rolling pills and folding powders, that is to his credit as a surgeon. If he understands how to build houses, graft fruit trees, mix strawberry pollen for improved berries, cure chicken pip, and tinker a trunk-lock, or put a clock in order, all these are so much to his credit. If, further, you love to meet him, the sight of him quickens you, and you are glad to hear him chat; and you know him thus to be a lovable, sympathetic man—he's the man for your doctor, your confidential friend—find him, trust him.

THE DOCTRINES OF RADEMACHER.—In Germany there seems to be two offshoots from regular medicine—the Homœopathic and Rademacherian. The first we have with us; its works are numerous, and we have the opportunity of determining its principles and methods. The second we have heard little of, further than that it is regarded as a species of quackery by the regulars, its works are not translated, nor is it mentioned in current medical literature. We feel obliged therefore to Dr. Von Grauvogl and his American translator, Dr. Shipman, for some information on the subject. It would seem that the cardinal principle of the Rademacherian school is, that disease should be met with *specifies*. "The foundation for the erection of an inductive curative method, which therapeutics of natural science needs, is the investigation of actual curative relation, i.e., the mutual relation between the essence of disease and the curative remedy." Determining by close examination the character of the disease "to the minutest details," a remedy is then selected, which previous experiment has shown to be directly opposed to the diseased process, and which will certainly prove curative. Underlying the processes of disease, whatever they may be, they recognise an *epidemic influence*, which has to be regarded in the treatment. According to Rademacher there are three very distinct *epidemic influences*, which thus furnish the ground work of diseases, and a basis for a very certain therapeutics. The nature of them is not known, and they are described as they assume a definite position as regards remedies. "It is an approved and certain axiom, that many essences of disease appear only in epidemic extension, so that one under various forms and symptoms for a certain period, lasting months or years, attacks a multitude of men. Hence, it the primary seat of disease, and the kind of the disease is recognised in those first affected, then the instituting or experiments of cure for all succeeding cases cease: and the physician knows with certainty that he can cure all new cases with the remedy discovered, without any, or with very rare exceptions."

HENRY DEANE, F.L.S.

"I applied mine heart to know, and to search, and to seek out wisdom, and the reason of things."—*ECCLESIASTES vii. 25.*

I WAS born at Stratford, in the parish of West Ham, Essex, near London, on the 11th of August, 1807. My parents, Moses and Elizabeth Deane, being members of the Society of Friends, I was brought up in that persuasion, and

continued a member thereof until my marriage in 1843. For nearly the first eleven years the only sound instruction I received was from my beloved parents. Although I was sent to what was considered a good day school, in the immediate neighbourhood, I have a most distinct recollection of its utter inefficiency as a place for communicating even the mere rudiments of knowledge, and it was not until my father sent me to a large Friends' school at Epping, conducted by Isaac Payne, that I had the slightest idea of what it was to be systematically taught, and to know the value and pleasure of learning. Unfortunately, my father's means were not such as to enable him to keep me long at school, and I was removed at Midsummer before I was fourteen years old, and just at a period when I began to like and understand my daily task. In after years I have felt how much was lost to me by this early removal from mental training. Nevertheless, during this time sown was sown and friendships formed which materially influenced my after life.

Amongst my schoolfellows were Henry and Edwin Doubleday, who have since attained a world-wide notoriety as entomologists. Their father was fond of collecting birds and insects, and the sons happily followed his tastes; they in their turn communicated the same to many of their companions, myself amongst the number. Moreover, I was occasionally favoured with an invitation to go home with them to tea, occasions which were highly prized as affording opportunities for seeing their collections, and illustrated books of natural history. From collecting insects, collecting plants and drying them—without regard to names, but for their intrinsic beauty—seemed naturally to follow. Thus habits of observing the beauties of creative wisdom were early fixed in my heart, and I often look back with thankfulness to that now far distant day when my friends the Doubledays sowed that seed which was to keep out many temptations to evil, and prove such a lasting source of pure enjoyment. I have ever since advised all my young friends to adopt a hobby calculated to improve the mind, and, by acting as a counterpoise to our natural tendency to indulge in sensuous pursuits, to keep the devil at a respectful distance.

From the time I left school, in 1821, I was four years in a state of untraining. My father's business was neither suited to my taste nor physical constitution, and I did but little in it. This state promised to be ruinous to my best interests in life, and perhaps would have been so but for the close friendship my father held with John Gibson, one of the firm of Howard, Jewel, and Gibson (now Howards and Sons), whose eldest son and I were great friends and constant companions. I had the run of their laboratory and premises, and thus gained a predilection for manufacturing chemical pursuits. My investigations were a frequent source of annoyance to our maid servant, whose proper domain was invaded by experiments with explosive compounds and fetid gases.

When I was about sixteen years old my kind friend, John Gibson, gave his son, myself, and another youth, who was our frequent companion, tickets for a series of lectures on Natural and Experimental Philosophy, which were delivered by a once assistant in the house of Allen and Hanbury's, at Plough Court, at the Mathematical and Philosophical Society's rooms in Crispin-street, Spitalfields. This course comprised the elements of physical science as then known, including mechanics. The latter I have ever since looked upon as the best foundation of all other knowledge, and I should like to see it form a part of our regular Pharmaceutical curriculum. The lectures were admirably delivered and illustrated, and sank so deeply into my mind that I can, at this distant day, recall most of the beautiful illustrations placed before us. This was one great saving and turning point in my life, which led to an increasing thirst for knowledge. Parkes's Chemical Catechism was placed in my hands, which I read through two or three times to my permanent advantage, as I soon practically discovered.

At the age of eighteen I was apprenticed, for three years, to a chemist and druggist at Reading, Joseph Fardon, who had served his time to my uncle Shillito, of Tottenham, and who afterward lived three years with John Bell and Co. in Oxford-street. This well-known Pharmacists was a kind, indulgent, considerate friend and master, and

while with him I learned to powder alum, ginger, and nut-galls; to grind and mix paints; polish the shop scales, counter and bottles; open and shut shop, and many other things now, unfortunately, considered *infra dignitatem* in this generation. I had to open shop, summer and winter, at six o'clock in the morning, a practice which I continued with my own hands for many years after I came to Clapham without losing the respect or confidence of any one of my customers. To me activity was a necessity, and I rather liked these tasks than otherwise, and I saw no indignity in performing duties required by my master, which were in their nature not only honest, but calculated to improve me in the knowledge of my business. For while grinding prussian blue or powdering roots and seeds, I pondered over their physical constitution, and afterwards read up their natural history in my then incomparable book and best friend, Thomson's Dispensatory. This habit of doing anything that was required of me was not only of immediate benefit to myself, but in after years probably rendered me more apt in teaching those placed under my care, and certainly gave me an idea of the nature and requirements of our trade in country places, such as London itself could not afford.

From that time my motto has been—as I believe it ever was in practice—"There is nothing beneath the dignity of a man that is not dishonourable." Not unfrequently have I had to carry a dozen or two of soda water to a distance of one or two miles on a hot summer's day, and these occasions afforded opportunities for looking after plants. I shall never forget on one of these excursions finding a fine plant of henbane, a plant I had never seen before, but which I recognised at once from the description read in Thomson's "Dispensatory." I took it home and made some extract much to my own satisfaction, but my master would not have it used, it was so unlike the black stuff regularly dispensed; mine was of that pleasant green colour now well appreciated.

In addition to the real love I had for my business, there was one strong inducement to stick unflinchingly to my duties, which was ever borne in mind. I knew I should have to get my living by an occupation deliberately chosen by myself, and paid for by my father, though with the humble fee he could but ill afford. Both parents would probably grow old, and the day might come when it would be my duty and privilege to provide for their declining years. An amount of honest pride was also a strong stimulant to exertion in acquiring knowledge. When I first entered on my duties behind the counter I was a tall fellow six feet high, and could look over the heads of my master and his assistant. Consequently, many of the customers presumed I knew more in proportion to my size, and asked me questions about things of which I had never heard, and which made me blush in uttermost confusion. This state of ignorance was most distasteful, and I resolved to have an answer ready for the next inquiring customer. Thus I soon gained a reputation for more knowledge than I felt I deserved. My master's small library was soon exhausted, and my shilling a week pocket money, and other small pecuniary presents were chiefly devoted to the purchase of such standard works, directly or indirectly relating to pharmacy, that my limited means would reach. At that time there was nothing in the English language published for the benefit of those following our particular business. This was very remarkable, seeing that Fellows of the College of Physicians were entirely dependent on the chemists and druggists as dispensers of their prescriptions, and for their success in practice. However, in London and some large towns in the country, a few of the most intelligent chemists did the larger portion of the dispensing, to the exclusion of those who would not or did not take sufficient pains to acquire the right kind of knowledge, or who could not resist the temptation to use inferior or sophisticated drugs compounded according to formulae well known at that date, but now rapidly becoming obsolete.

I ought, perhaps, here to bear testimony to the exertions of the late Thomas Herring, who was the first, I believe, to introduce pharmaceutical preparations of such excellence and elegance as had never before been offered to the trade. In fact, they were a rapid stride in advance, and by many druggists were looked upon with suspicion. Ultimately the old system was broken down by his innovations; and we, of the present day, have much for which to thank him.

After I was out of my time at Reading, I was fortunate enough to get a situation at John Bell and Co's, in Oxford-street, when I soon found that I was unacquainted with the practical duties of a large business, and I sometimes wished the floor to open and swallow me up, so ashamed was I that such a big fellow should know so little. However, "Labor omnia vincit," I stuck to my early resolution of never allowing anyone to feel dissatisfied for want of a proper answer, and I read a variety of useful books at every opportunity, carefully avoiding politics and novels. All this was heavy work with my average daily labour of fourteen hours. I was much encouraged by the friendship of both the late Jacob and Frederick Bell; to them, or rather to their memory, I owe a deep debt of gratitude for their many acts of consideration for my faults, and the opportunities placed in my way for improvement. One inestimable boon I must specially mention—their allowing me to attend a course of lectures, at the Royal Institution, by Faraday and Brande. This was a great privilege, and not one to be slighted. Never shall I forget the clear and impressive manner of both those great men. They were perfect each in his own way; but Faraday cannot ever be forgotten for his simple eloquence and unfailing success in all his experiments. His kindly, earnest, and impressive manner conveying in every word the evidence of truth, made an indelible impression on my mind and all who heard him.

Between my first entry into the establishment in Oxford-street, and my ultimately leaving it, there was an interval of about two years, during which I was at home endeavouring to manage and improve the business of my father, who had become paralysed, and incapable of attending to it. There I continued some time after his decease. I was in Oxford-street altogether about five years, and had become greatly attached to it, both on account of friendships formed and the many privileges enjoyed, when a circumstance occurred which rendered it needful for me to leave. John Bell had an excellent library which was accessible to the assistants; but as yet there was nothing specially written for chemists and druggists, and this want was the frequent subject of conversation between Jacob or Frederick Bell and myself and we more than once suggested the formation of a society adapted not only for mutual improvement, but with a view to the general improvement of the whole body of chemists and druggists. It was not, however, till some time after I had left, and was in business on my own account, that Mr. Hawes's Bill stirred up the general body, and gave rise to the formation of the Pharmaceutical Society.

In the autumn of 1837 I took the business now occupied by me at Clapham, assisted by several friends, but more especially by the late Richard Hotham Pigeon, whose large pecuniary aid, afforded in the most liberal and trusting spirit, was supplemented by the advice of a judicious parent. This step was looked upon as certain failure, but my friend Pigeon and the minority encouraged me with better hopes. Besides, had I not my dear mother and sister with me entirely dependent on my success? My own mind never wavered, I was not afraid of work, and I knew how to live on bread and cheese with no stronger drink than a cup of tea or a glass of water. Providence favoured me in a most wonderful manner, and my best hopes were more than realized, so that in a very few years I was out of debt and prospering to my heart's content.

In 1841, on the establishment of the Pharmaceutical Society, I became one of its first members, but took no active part in its formation. In 1844 I was requested to become one of the Board of Examiners. After a little hesitation I accepted the honourable post, a step which I have never regretted. It afforded me large means of self-improvement and at the same time brought me in contact with men, the value of whose friendship I cannot express in words. The same may be said of my connection with the Council, upon which I was elected in 1851. In 1840 the Microscopical Society was formed, and my friend Frederick Bell and I joined it on the foundation. I invested £10 in a microscope, and began work investigating and mounting objects with great ardour. This instrument did not long please me, and I got the basis of a better and more complete one, with which in 1845 I made the remarkable discovery of the existence of Xanthidium and Polythalamia

in the grey chalk of Folkestone, a bed below the common white chalk. It is well known that the white chalk, is chiefly made up of the débris of the shells of Foraminifera—a fact first brought to my notice by the late Dr. Pereira—and that the layers of flints, supposed with strong reason by Dr. J. S. Bowerbank to be the fossilized condition of ancient sponges, contained a great variety of the organisms called Xanthidium and Polythalamia. I looked carefully in the chalk itself for the Xanthidium without success, but found them freely distributed in some portions of the grey chalk in which flint in layers, like those of the white chalk, do not exist, but in which occur occasional masses of chert, showing abundant evidence of the structure of sponges without, so far as I could detect, any evidence of Xanthidium. The Polythalamia in this grey chalk were in a very remarkable condition, showing what appeared to be the investing membrane of the shells and the bodies in a truly fossilized but not silicified condition. The species seemed to be identical with those found in the white chalk. Another curious fact seemed to me to be brought out, namely, the mode of distribution of the silica in these two kinds of chalk. In the white chalk it chiefly exists in the form of layers of flints, in the other it is distributed in minute grains or crystals. I also discovered in a focus (?) prepared as an article of diet in China or Japan, an abundance of a beautiful siliceous organism occasionally found in Ichaboo guano, and which, in a notice read to the Society, I named Arachnoidiscus Japonicus, forming the basis of a genus of great beauty, and deservedly popular amongst amateur observers with the microscope.

The distribution and exchange of these and other objects of interest with members of the Society led to the most friendly intercourse with many excellent men, to whom I am greatly indebted for kindly feeling, and for hints in the art of observing and mounting objects, thousands of which I have had intense pleasure in distributing. It is almost invidious to name one good friend without naming others, but it would be unjust not to mention Mr. Bowerbank's open weekly evening meetings at Islington, where any one with a desire for knowledge was ever welcomed, with or without personal introduction. Frederick Bell and I went thus, were kindly welcomed, and had our first lesson in observing with a good microscope. So began what little skill I possess in the use of an instrument which for full thirty years has afforded me an inexhaustible source of elevating and unalloyed pleasure. My microscope led to a most friendly intercourse with the late Dr. Pereira, and some of the illustrations in the edition of his *Materia Medica*, in progress and unfinished at his decease, were made from objects prepared and mounted by myself.

The first meeting of the new Society that I attended was at 338, Oxford-street, when I read a short and very indifferent paper on "Displacement,"* as a method of preparing tincture, etc.; yet poor as it was, I believe it set many chemists experimenting and working at that method of preparing tinctures and extracts. The process has since that time become more completely understood, and consequently more successful. My next contribution was "Experiments on Senna,"† noticed by both Dr. Pereira and Dr. Royle, subsequently many smaller ones of no great value until those on opium preparations and extract of meat, the chief merit of which is due to H. B. Brady, without whose ready pen and pencil their interest would have been very small.

When I took my place at the Board of Examiners, I found that very efficient arrangements had been made for conducting the examinations (I believe by Mr. P. Squire of Oxford-street); and although not so efficient as they afterwards became under energetic care and ordering, they were fully up to the requirements of the students. The tables were well supplied with specimens of all kinds, fresh plants, drugs, and chemicals, but as yet there was no practical dispensing. I am quite satisfied that although not so systematically conducted as they are at present, the Examiners arrived at a correct estimate of the qualifications of those who presented themselves. One striking fact was constantly noted for many years that the larger number of the best qualified men were those who had acquired their knowledge in the country, without those special advantages afforded to those who attended the

lectures and laboratory at the establishment in Bloomsbury-square. This was the case for several years after the institution of examination; but it is notorious that these first men have now taken their proper place as leaders amongst their brethren in pharmacy.

The examinations for many years did not occupy many hours on each occasion; the number of examiners was small, and they were conducted *con amore* without fee, other than that afforded by a good conscience: "and all for love, and nothing for reward." Of late their onerous duties have wisely been remunerated; and it is the concurrent testimony of all that they are discharged with strict impartiality.

I was elected on the Council in June, 1851, and almost before I had taken my seat, Mr. John Watts, of the Edgware-road, proposed me as Vice-President, which extraordinary proposition was at once carried, and I was enthroned at the lower end of the table. Thomas Herring was President. The following year, 1852, Mr. Joseph Gifford was elected President, and I again Vice-President. In 1853 and 1854 I was President, and underwent the severe ordeal of the prosecution by Mr. Dickenson, from which the Society ultimately emerged victor.

In 1854, the College of Physicians applied to the Council of the Pharmaceutical Society, for aid in the preparation of a new Pharmacopœia, and a committee was formed to assist in this object. As President, I was chairman of the committee, and at the special request of the chairman of the Pharmacopœia Committee of the College of Physicians, Dr. F. Farre, I retained that position, as the medium of communication between the two bodies until the Royal Medical Council was appointed, and took proceedings to form a national Pharmacopœia. Our services were no longer required; but I may state that when we entered upon our duties we resolved to do what we could to promote the formation of a national Pharmacopœia, and for this object Mr. Squire's admirable book, "The Three Pharmacopœias," afforded a means of comparison, and a basis of operation.

Dr. Redwood was our efficient Secretary, and performed many experiments as circumstances suggested. I made many hundred of experiments between the meetings, which were seldom held oftener than once a month. Once a week would not have been too frequent, but council, committee, and examinations already occupied a large amount of time, which few of us could afford to sacrifice. I can safely say that during the six years I held these responsible positions, one-fourth of the time was entirely taken up in the service of the Society.

This service of twenty-six years has been a service of love, a kind of second bride, and during that time, being fully aware of my deficiencies, I trust I have laboured with some degree of success to promote the great object set on foot by my late valued friend, Jacob Bell, to stimulate the mental energies of our young men, and to institute a system of education which should fill the void which had hitherto existed. How far my colleagues and I have been successful it is not for us to know, but another generation will develop the truth and pronounce a verdict.

Here ends the autobiography for which the readers will assuredly thank the writer. Little remains to add, for there is still amongst us the one whose features have been so admirably rendered by the artist. He has caught the true expression and the portrait is a success.

What will some of the younger generation, who fear to let the breath of Heaven wake them too early in the morning, think of a few passages in this simple narrative? May we be allowed to supply a slight omission, and show how anatomy was learnt in a certain Oxford-street establishment. Stimulated by the advice of the patriarch of Clapham, a good manual was purchased. One assistant, who happened to be off duty, turned lecturer for the time being, and got up his subject theoretically. But there is a skeleton in every house, and in this firm the particular one upstairs was useful—consequently the young anatomist was able to correct his theories by actual observation. The pharmacist whom just now we wish to honour was tall and strong, hence it was his duty to bring down the specimen of decayed humanity, which he effected in the same manner as the pious Aeneas

rescued his father under perilous circumstances. What follows—shall we recapitulate? Earnest study, a hand-to-hand battle for the necessities of life—we do not glaze over facts—the support of a mother and sister, strong inducements for endeavour: success, and a newly created business rising like the Phoenix from more than the usual supply of ashes; lastly, the consolidation of a pharmacy, firmly planted, financially prosperous, and elegantly appointed. Then we hear of scientific papers, some of which are mentioned here, and others are described in a report on the Royal Microscopical Society. (*Pharmaceutical Journal*, vol. x. s.s., No. 1.) The readers and writers of such papers get together, they know the value of study, and love knowledge passionately for its own sake. They are unwilling to shut out others from these *advantages* and pleasures, all the more as their life, in its commencement, was hard and uninviting. So thus, and for this reason, springs up a society proferring with liberal hand solid instruction and encouragement—two novelties; foremost amongst these men, spite of his modest reservations, was the subject of this sketch.

Long may he remain to read these concluding paragraphs; many a time and oft may he be seen amongst his fellow-examiners, oscillating between extracting the deep secrets of botany, and talking like a father to the students; years to come may his presence gladden the British Conference, and there let him demonstrate with his invariable happiness that he has not forgotten to be young.

And we who write these lines cannot refrain from confessing how great an honour we feel it to be allowed to aid in arranging this brief account of one whom our own father taught us to hold in reverence. Most surely we express the heartfelt sentiments of all, when we say how infinitely more we delight to offer a laurel wreath to his living excellence rather than a hundred immortelles to his memory.

[An apology is due to our friend whose autobiography is here given. The manuscript was sent for our own private use, but at once perceiving its literary value, we have inserted it almost as it was received. We knew H. Deane's natural diffidence and acute sense of propriety would not altogether approve the course we have adopted, but we trust to his known forgiving disposition to overlook our offence.—ED.]



ANNATTOINE.

WE have received from Mr. G. de Cordova, of New York, a specimen of the above preparation of annatto, which is very popular in the United States, and we think is likely to be well received in the cheese districts of this country. All cheese makers know the uncertainty of cake annatto in producing a colour which shall not vary. In America this is studied considerably, as in the large dairies there it is very important to produce an invariable shade. For the London market they give a higher colour to the cheese which they send to this country than to those intended for sale in Liverpool, and there are several other markets where it is necessary to send cheese of a peculiar tint, or it is on arrival comparatively unsaleable. The English makers generally use liquid annatto in order to obviate the uncertainty of the cake or paste, and so carefully have the manufacturers of this article maintained a uniform excellence that we believe it is universally satisfactory. The

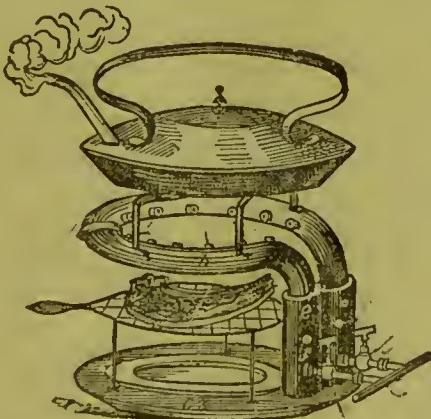
annattoine is a dry powder, being the extract of the annatto, and containing apparently nearly, if not quite, all the colouring matter. It possesses a rich colour, which it readily imparts to the cheese, and it is said that one pound of annattoine is sufficient for from seven to ten thousand pounds of cheese, according to the depth of colour required. We are not able to say whether this is comparatively economical or not. For the service of those of our readers who wish for further particulars, we refer to an advertisement of the article in the "Chemists' and Druggists' Almanack and Diary, 1871."

SPIKING'S CHALYBEATE BISCUITS.

WE introduce these to our readers with much pleasure. Messrs. Spiking and Co. are very accomplished in the art of biscuit-baking, and they have produced a most enjoyable luncheon biscuit, excellently suited to chemists' sale, and from their composition likely to be useful as a slight tonic and alterative. The makers have wisely kept down the medicinal flavour, but can, no doubt, without much difficulty, give in this form as much physic as is necessary—at least as much as a glassful of the Cheltenham waters contains. We have mentioned Cheltenham waters, because these seem to be the springs selected for imitation in this case. We have not much faith in the efficacy of mineral springs, which we regard as a pleasant kind of delusion. But Cheltenham will have plenty of attraction left if these biscuits should interfere with the demand for its natural medicines.

CLEMENT'S FURNACE.

THE engraving shows one of the above, but unfortunately represented as doing duty in a domestic capacity. We must leave to our readers' imagination to picture the same apparatus in professional costume. One was exhibited at the last meeting of the Pharmaceutical Society. By arranging



the supply of air and gas, it was said, perfect combustion is secured, the advantage of which is, that the maximum amount of heat is obtained with the minimum expenditure of gas, as well as the avoidance of the deposit of carbon on the vessels set over the furnace. The apparatus is rather too clumsy for the dispensing counter, although it might easily be made more elegantly; but it would seem to be well adapted for use in the laboratory.

LETTS'S INVISIBLE INK.

THE post-card era is the immediate occasion of the production of this novelty. We presume the invisible ink is a solution of chloride of cobalt; whatever it is it answers its purpose. It is especially attractive to ladies and gentlemen

of a sentimental and at the same time economical turn of mind; but we hope it will never be largely adopted for commercial communications. It would be a serious matter if one had to toast all one's letters before being able to read them.



SEWAGE: AN ENEMY AND A FRIEND.*

A COMMITTEE of the British Association (1869) resolved that it was desirable that a digest of all matters relating to the treatment and utilization of sewage should be prepared, and having entrusted the work to Professor Corfield, the book before us is the result.

It cannot be questioned that this resolution of the British Association Committee was a wise one. Our arrangements for the disposal of our sewage are discouraging enough to every economic mind; they may almost be said to be discreditable to a scientific age. But to conceal the weakness and danger from ourselves would be a course foolish and reprehensible in the highest degree. Nevertheless, considering the advances that have been made in the treatment, if not so much in the utilization of sewage—that is to say, having regard to the undoubted sanitary improvements which have been effected within the past twenty years—there do seem to be hopeful signs of the future solution of this intricate problem.

The chief value of Professor Corfield's work is that in it he has condensed and presented in a connected form large masses of almost unreadable evidence and reports. In his preface he expressly informs his readers that he alone is responsible for the conclusions that have been drawn in the book, but it must be of some value to have these so clearly defined by one who has so well fitted himself to judge. Considering, first, the treatment of sewage, the author gives a most decided preference to the water-closet system for the disposal of excreta, although he seems to give full prominence to the advantages claimed by the advocates of the dry earth system. He gives also in this part many important details of the many other systems (or no-systems) in vogue in the various towns of this country, and also some respecting foreign cities; but he evidently considers that, especially for large towns, no plan of carrying away excreta has yet been adopted at all comparable to water-closets, both as regards health and convenience.

The part of the work which treats of the utilization is singularly interesting and instructive. Taking London alone, we are told, on authority, that 266 millions of tons of liquid sewage are annually discharged into the sea. The minimum value of this is estimated at 1d. per ton, giving a total of £1,108,333 6s. 8d. This calculation curiously corroborates another estimate which is also quoted, and which reckons the annual value of human excreta to average 6s. 8d. per head of the population. This last estimate is computed from the quantity of ammonia contained. Liebig has calculated the value of London sewage to reach over four millions annually. But at any rate it may be fairly calculated that over a million pounds is in this way annually *worse than wasted*. The book before us gives a résumé of the various processes that have been adopted in various places to recover this loss, and it concludes with almost an enthusiastic advocacy of the immense superiority of irrigation over every other plan. Professor Corfield seems almost too evidently to lead up to this end, and we fear he is too ready to believe in the innocent healthfulness of irrigation to the inhabitants of the neighbourhood where it is adopted. He appears to overlook, too, the enormous difficulties in the way of applying it to the sewage of large towns like London. But, setting this aside, we do not hesitate to describe this as a book of extreme value, and though its compilation must have been laborious, it has been carried out by Professor Corfield with the utmost patience and ability.

* The Treatment and Utilization of Sewage. By Professor CORFIELD M.A., M.B.(Oxon.), etc. London: Macmillan.

OUR LIBRARY TABLE.

In sending us a copy of his elegant little work, entitled "The History of the Pianoforte" (Cassell), Mr. Elgar Brinsmead must have been actuated by a sense of pity for our hard fate in having to read of chemical reactions or medicinal effects from morn to night. We thank him for his courtesy, but being utterly incompetent to form a judgment of any value as to the accuracy of his facts, we can only add that we have read with much pleasure the interesting sketch of musical history here recorded, commencing with Tubal Cain, and coming down to Messrs. Brinsmead and Son.

We have received a copy of a lecture by Professor Gaugée on "Contagion," delivered before an audience of farmers in the North of England. In vigorous language Mr. Gaugée advocates a much more liberal employment of disinfectants than is generally adopted, and particularly refers to the value of caloralum in treating stock.

Corner for Students.

CONDUCTED BY RICHARD J. MOSS.

The chemical formulæ employed in this section are based upon the new system of atomic weights, unless the use of the older system is specially indicated. In the *British Pharmacopœia* the symbols corresponding to those adopted here are printed in heavy Clarendon type. The new editions of Fownes's *Manual of Chemistry*, and Attfield's *Chemistry: General, Medical, and Pharmaceutical*, supply the data required for calculations, and are recommended as text-books.

QUESTIONS.

First Division.

I. QUALITATIVE ANALYSIS.—Describe a process for the examination of urine for glucose.

II. ORGANIC ANALYSIS.—The analysis of an organic body, containing carbon, hydrogen, and oxygen, gave the following experimental numbers:—

Substance burnt 0·33 gram.

Carbon dioxide found : : : 0·66 "

Water found 0·27 "

The vapour density of the substance referred to hydrogen, as unity was found to be 22. What are the composition and formula of the compound?

III. POTASSÆ PERMANGANAS, B. P.—How many ounces of potassium permanganate are theoretically produced by the officinal process for the preparation of this substance?

IV. WATER.—Describe the phenomena which accompany the freezing of water, and mention some of the more important results which are due to the anomalous behaviour of this liquid when solidifying.

V. SPECIFIC GRAVITY.—A piece of wood which weighs 22·5 grains in air is attached to a piece of metal which weighs 27 grains in air and 24 grains in water, the weight of the united mass in water is 9 grains. What is the weight in pounds of a plank of the same wood ten feet in length, one foot three inches in breadth, and three inches in thickness? (One cubic foot of water weighs 62·5 pounds.)

Second Division.

I. ACIDUM HYDROCYANICUM DILUTUM, B. P.—Calculate the theoretical product (in fluid ounces) of the officinal process for the preparation of this substance.

II. SULPHURIC ACID.—How many pounds weight of sulphuric acid of the officinal strength and density may be prepared from one ton of iron pyrites containing 77.5 per cent. of iron disulphide (FeS_2)?

III. HEAT.—Give an outline of the dynamical theory of heat.

IV. CHEMICAL AFFINITY.—What are the circumstances which determine the order of the following decompositions? When a solution of calcium chloride is mixed with a solution of ammonium carbonate, calcium carbonate and ammonium chloride are produced. When dry calcium carbonate is powdered and mixed with ammonium chloride, and the mixture heated in a retort, the products are, ammonium carbonate and calcium chloride.

V. SPECIFIC GRAVITY.—If a glass ball weighs 5 grammes in air, and 2.27 grammes in water, what should it weigh respectively in the hydrochloric acid, nitric acid, and sulphuric acid of the Pharmacopœia?

ANSWERS.

First Division.

QUALITATIVE ANALYSIS.—The following method depending upon the coagulation of albumen by heat, is that usually employed for the detection of this substance in urine. If the liquid is not clear, the undissolved portion is separated either by decantation or filtration, and if it is neutral or alkaline, a few drops of acetic acid are added to produce faint acid reaction. It is then boiled; if it remains clear albumen must be absent, but if coagula appear, dilute hydrochloric acid is added to a portion of the liquid. If the precipitate dissolves it was not due to albumen, but was probably due to calcium or magnesium phosphate. If the precipitate does not dissolve, more dilute hydrochloric acid is added and the mixture is boiled. If the precipitate dissolves slowly, while the liquid assumes a violet colour, albumen is present. The result may be controlled by examining the action of nitric acid upon the primitive secretion. Concentrated nitric acid produces in solutions of albumen a precipitate of a bright orange colour, which gradually dissolves in the acid with effervescence. Dilute nitric acid precipitates albumen readily and completely, and does not redissolve it, but this precipitate is soluble in a large quantity of water.

II. DIGITALINUM, B.P.—When the digitalis leaf is treated with the rectified spirit the digitalin is dissolved out, the greater portion of the spirit is then recovered by distillation, and the remainder of it is evaporated. The residue is treated with water, to which acetic acid has been added, to effect the solution of the digitalin, this substance being almost insoluble in pure water. The solution is then decolorised to some extent by boiling it with animal charcoal. The greater portion of the acetic acid is neutralised by ammonia, and tannic acid is added. This acid forms with digitalin an insoluble compound, which, when washed, is mixed with spirit and lead oxide; the latter substance combines with the tanic acid, forming insoluble lead tannate, and liberating the digitalin. The solution is further decolorised by the aid of animal charcoal, then filtered, the spirit evaporated, and the residual digitalin washed with ether.

III. DIALYSIS.—The late Professor Graham employed the term dialysis to designate the separation of substances by liquid diffusion through a septum of gelatinous matter. The apparatus employed in this separation is called a dialyser. It usually consists of a shallow cylindrical vessel open at one end, but having the other end tied over with parchment paper. The liquid to be dialysed is poured into the vessel to the depth of about half an inch, and the dialyser is partially immersed in water contained in a larger vessel. Some substances have the power of passing through the paper septum with considerable rapidity compared with others. Bodies belonging to the former class, that is, possessing a comparatively high diffusive power, are termed crystalloids, because they have generally the power of crystallising. When in a state of solution, these bodies are held by the solvent with a certain force. The solution is generally free from viscosity, and always sapid. Their reactions are energetic and quickly effected. They are not all crystalline; hydrochloric acid and alcohol, for example, belong to this class. Substances of a very low diffusive power are called colloids, from colloid, the soluble form of gelatine, which may be taken as a type of this class. Colloids have little if any tendency to crystallise, and they effect a vitreous structure. They are distinguished by the gelatinous character of their solid hydrates. Although these substances of low diffusive power are often largely soluble in water, they are held in solution by a feeble power; and their solutions have always a certain degree of viscosity, or gumminess when concentrated.

IV. HYDROSULPHURIC ACID.—This acid, which is readily prepared by the action of dilute sulphuric acid on iron sulphide, exists at the common temperature and pressure as a colourless inflammable gas, possessing a highly offensive odour, resembling that of rotten eggs. This gas has a specific gravity of 1·171 referred to air. It burns with a blue flame, the products of complete combustion being water and sulphur dioxide. One volume of water at 0° C. dissolves 4·37 volumes of the gas, at 15° C. it dissolves 3·23 volumes of the gas. Under a pressure of seventeen atmospheres, and

at the ordinary temperature of the air, this gas assumes the liquid form; it is also liquid at 74° C., and becomes solid at 85° C. There are two principal classes of sulphides, one, the sulphydrates in which the hydrogen is partially displaced by the metal, as in potassium sulphydrate (KHS), and the other, in which the hydrogen is entirely displaced by the metal, as in potassium sulphide (K₂S). The sulphides of the metals of the alkalies and alkaline earths are the only metallic sulphides which are soluble in water, they are colourless; but the sulphides of mercury, lead, bismuth, copper, silver, gold, platinum, cobalt, and nickel, are black or dark brown when formed in the humid way; ferrous sulphide is also black; arsenic and cadmium sulphides are bright yellow, tin mono-sulphide is brown, and tin disulphide is yellow. Antimony sulphide is orange red, manganese sulphide is flesh-coloured, and zinc sulphide is white. All sulphides are decomposed by heat, some by heat alone; but all when heated in contact with oxygen or atmospheric air. The sulphides soluble in water are converted into sulphates when heated. Zinc, iron, manganese, copper, lead, and bismuth sulphides are converted into oxides when heated. Mercury and silver sulphides are completely reduced to the metallic state.

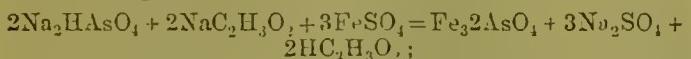
V. SPECIFIC GRAVITY.—The specific gravity of the solid is 1·943. The quantity of turpentine which it displaces is (700 + 265 - 857·25 =) 107·75 grains, this is equal to ($\frac{107\cdot75}{79} =$) 136·3924 grains of water, therefore the sp. gr. of the solid is ($\frac{265}{136\cdot3924} =$) 1·943.

Second Division.

I. EMPLASTRUM PLUMBI, B.P.—The principal constituent of ordinary olive oil is glyceryl oleate (C₃H₅, 3C₁₈H₃₃O₂), or oleine, and when this substance is boiled with lead oxide and water it is decomposed, the products being glyceryl hydrate, or glycerine (C₃H₅3HO), and lead oleate (Pb₂C₁₈H₃₃O₂), the lead plaster of the Pharmacopœia. This reaction may be thus represented—



II. FERRI ARSENIAS, B.P.—The weight of the theoretical product of the officinal process for the preparation of this substance is 4·7957 ounces. The following is the reaction which takes place—



according to which two molecules of sodium arseniate (372) and three molecules of ferrous sulphate are required for the production of one molecule of ferrous arseniate (446). But the quantities of sodium arseniate and ferrous sulphate employed are 4 oz. and 9 oz. respectively; the latter substance is therefore considerably in excess, and, accordingly, we must calculate the weight of ferrous arseniate which may be produced from 4 oz. of sodium arseniate; this is done by the following equation—

$$372 : 4 = 446 : x \therefore x = 4\cdot7957.$$

Sodium acetate is employed in this process for the purpose of having free acetic acid present instead of free sulphuric acid, which would otherwise be liberated, and would dissolve the ferrous arseniate, but the acetic acid does not dissolve this salt.

Heat.—When heat is applied to a solid capable of existing in the liquid state, a certain amount of heat is absorbed which is not indicated by the thermometer. This absorption generally takes place about the fusing point, the result is that at this temperature a body contains less heat in the solid than in the liquid state. The heat which is thus absorbed and rendered insensible is called latent heat, or heat of fluidity. When a solid is made to liquify by solution sensible heat becomes latent, and the result is cold; solution is sometimes accompanied by energetic chemical action, from which heat results, rendering the fall of temperature imperceptible.

IV. GAS VOLUME.—The volume of carbon dioxide at 15° C., and 745 m.m. pressure, produced by the combustion of 5 grammes of carbon is 10·032 litres. The molecular weight of carbon dioxide is 44, and one molecule of it con-

tains one atom of carbon, weighing 12, therefore, 5 grammes of carbon produce ($\frac{44 \times 5}{12} =$) 18·333 grammes of carbon dioxide, the volume of this weight at the standard temperature and pressure is found by the following proportion—

$$1\cdot96664 : 1 = 1\cdot833 : x \therefore x = 9\cdot32216.$$

To correct this volume for the given temperature we have

$$273 : 273 + 15 = 9\cdot32216 : x \therefore x = 9\cdot83436,$$

and to correct for pressure we have

$$745 : 760 = 9\cdot83436 : x \therefore x = 10\cdot03237.$$

V. SPECIFIC GRAVITY.—100 cubic centimetres of the alcohol weigh 79·121 grammes. The weight of water displaced by the ball is ·364 of a gram., and the weight of alcohol displaced is ·288 of a gram., therefore the sp. gr. of the alcohol is ($\frac{·288}{·364} =$) ·791208100 cubic centimetres of water weigh 100 grams.; therefore the same volume of alcohol weighs (100 × ·791208 =) 79·1208 grams.

PRIZES.

The First Prize for the best answers to the questions of the First Division printed in our October number has been awarded to

JOSEPH WATTS, jun. (J. W.), Attercliffe, Sheffield, who has already carried off three prizes.

The Second Prize for the best answers to the questions of the Second Division has been awarded to

JOHN G. ATKINSON (J. G. A.), Mr. Kemp's, Horneastle.

Marks awarded for Answers.

	First Division.							
	I.	II.	III.	IV.	V.	E.	Total.	
J. W. (1st prize)	..	8	5	7	8	5	36	
P. B.	7	5	7	7	5	34	
Nil sine labore	..	6	5	7	8	5	34	
Otho	7	5	6	7	5	33	
B. S. A.	7	5	5	8	5	33	
A. B. Fletcher	7	5	6	6	5	32	
N Coaker	6	5	5	6	5	30	
F. C. Treadgold	5	5	6	6	5	30	
W. J. M.	7	5	5	5	5	28	
Anthemis	7	5	4	4	5	28	
Vita	4	5	7	4	5	27	
J. H. Watson	7	5	6	6	0	27	
J. Tully	6	5	4	3	5	26	
J. Young	7	5	4	6	1	26	
G. Archbold	7	5	6	5	0	25	
J. S. E.	5	5	4	7	1	25	
W. B. Pyron	6	—	—	—	—	6	

Second Division.

	I.	II.	III.	IV.	V.	E.	Total.
J. G. A. (2nd prize) ..	5	5	4	6	4	3	27
F. W. Fletcher ..	5	5	5	4	4	3	26
G. Spiers ..	5	5	5	3	3	3	24
Limax ..	5	1	5	4	4	3	22
P. L. ..	5	2	5	6	3	1	22
Spes ..	5	1	4	6	4	1	16
S. T. S. ..	5	1	2	4	3	1	12
H. C. G. ..	1	1	5	0	4	1	11
W. J. Smith ..	0	5	1	1	3	1	10
Omega ..	3	3	2	0	0	2	8
I. O. U. ..	1	1	5	0	0	1	8

TO CORRESPONDENTS.

* * All questions forwarded to us for publication in this "Corner for Students" should be accompanied by the answers which the propounders believe to be correct. Communications should include the names and addresses of the writers; those which reach us after the first day of the month will be disregarded.

Prizes.—The students to whom prizes are awarded are requested to write at once to the publisher naming the book they select, and stating how they wish it forwarded.

Nil sine labore.—The postage on your paper was insufficiently prepaid.

Anthemis.—Students cannot compete in more than one division at the same time, we therefore disregarded your answers to the questions of the Second Division.

Vita.—I. The presence of an alkali or alkaline carbonate in a liquid containing albumen greatly modifies the reactions of that substance; if the alkali is present in considerable quantity, the solution does not coagulate by heat, it is therefore desirable that the liquid should have an acid reaction before it is boiled.

J. H. Watson.—V. You should have given your reason for dividing the number 100 by the weight of the turpentine displaced.

J. Tully.—IV. There are several different systems of metallic groups employed, so that we cannot tell what metals you include in the fourth group.

G. Archbold.—The assumptions upon which your calculations are based are very erroneous. Supposing the bottle to hold 887 grains of water, the

whole would not weigh 187 grains more with water than with turpentine, because this weight is the difference between the weight of 700 grains of turpentine and that of an equal bulk of water, and not the difference between the weight of the turpentine which remains in the bottle after the addition of the solid, viz., 692.25 grains, and the weight of an equal bulk of water.

J. S. F.—V. Error in final multiplication.

F. W. Fletcher.—The sp. gr. of carbon dioxide referred to air as unity is 1.524; of course it is much more referred to hydrogen as unity.

S. T. S.—II. The quantity of ferrous sulphate employed is much more than is required theoretically, but practically it is desirable to have it in excess.

H. C. G.—We do not require the details of the calculation, and we are satisfied with three decimal places in the final result.

W. J. Smith.—I. It is lead oxide and not the metal that is employed; the water takes part in the reaction, and should, therefore, be represented in the equation. Not much improvement this month. We would recommend you, when you have worked out your solutions, to put them aside for a few days and then examine them carefully before forwarding them to us.

Omega.—See remarks to H. C. G. III. Heat has long since ceased to be regarded as material, the source of your information must be rather out of date.

Books offered as First Prizes.

Attfield's Chemistry: General, Medical, and Pharmaceutical. (Van Voorst.) Brooke's Elements of Natural Philosophy. (Churchill.)

Conington's Handbook of Chemical Analysis; with Tables of Qualitative Analysis adapted to the same. (Longmans.)

Eliot and Storer's Manual of Inorganic Chemistry. (Van Voorst.)

Fawcett's Manual of Elementary Chemistry. (Churchill.)

Presenius's Qualitative Analysis. (Churchill.)

Galloway's Qualitative Analysis. (Churchill.)

Ganot and Atkinson's Elementary Treatise on Physics. (Longmans.)

Garrod's Materia Medica; with Modern Chemical Notation. (Walton.)

Noad's Chemical Analysis, Qualitative and Quantitative. (Reeve.)

Northcote and Church's Qualitative Analysis. (Van Voorst.)

Odling's Outlines of Chemistry. (Longmans.)

Reyle and Headland's Materia Medica. (Churchill.)

Wilson's Chemistry for Students. (Clarendon Press.)

Barff's Introduction to Scientific Chemistry. (Groombridge.)

[Any other scientific book that is published at a price not greatly exceeding half-a-guinea may be taken as a first prize.]

Books offered as Second Prizes.

Bloxam's Laboratory Teaching. (Churchill.)

Church's Guide for Students in Agricultural Chemistry. (Van Voorst.)

Galloway's First Step in Chemistry. (Churchill.)

Gill's Chemistry for Schools. (Walton.)

Hofmann's Introduction to Modern Chemistry. (Walton.)

Huxley's Lessons in Elementary Physiology. (Macmillan.)

Oliver's Lessons in Elementary Botany. (Macmillan.)

Orme's Introduction to the Science of Heat. (Groombridge.)

Potts's Elements of Euclid. School Edition. (Longmans.)

Roscoe's Lessons in Elementary Chemistry. (Macmillan.)

Wormell's Elementary Course of Mechanics. (Groombridge.)

Wurtz's History of Chemical Theory. Translated by Watts. (Macmillan.)

[Any other scientific book which is sold for about five shillings may be taken as a second prize.]

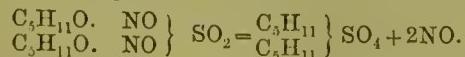


CHEMICAL SOCIETY.

November 3rd.

PROFESSOR WILLIAMSON, F.R.S., President, in the chair. The following gentlemen were elected Fellows:—D. Howard, T. Muter, and C. W. Siemens, F.R.S. On opening this first meeting in the new session, the President alluded in a few earnest words to the loss the Society had recently sustained through the death of two of the most distinguished of its members. The following papers were read:—

Mr. E. T. CHAPMAN, on the production of the sulphates of the alcohol radicles from the nitrites by the action of sulphurous acid. When sulphurous acid gas is passed into nitrite of amyl it is rapidly absorbed. The nitrite changes in colour from yellow to green, from green to blue; it then begins to effervesce, and at the same time becomes hot and boils violently. Careful observation showed that the reaction consisted in the replacement of two atoms of nitric oxide by one of sulphurous acid.



The resulting liquid, had, therefore, the composition of neutral sulphate of amyl. It readily breaks up into amylic alcohol and sulphuric acid by boiling with water, and, by long standing, even with cold water; treated with strong hydrochloric acid it yields sulphuretted hydrogen, water, iodine, and

amylic iodide; potassic bichromate and sulphuric acid cause it to yield valerianic acid.

Sulphurous acid and butylic nitrite react upon each other in a manner analogous to that of SO_2 , or amylic nitrite; but the resulting product is even more unstable.

Sulphurous acid and nitrite of ethyl do not readily act upon each other, at least not at the common temperature.

Mr. Chapman then proceeded to the theoretical considerations which are suggested by the above facts. Are these compounds, properly speaking, sulphates of alcohol radicles, or only isomeric bodies with them? The reaction of the amyl compound with water is very different from that of sulphate of ethyl under similar circumstances; it does not, when boiled with water, form an acid analogous to isothionic acid, but splits up into sulphuric acid and amylic alcohol. This would suggest a different linking of the molecules.

Mr. VACHER read a paper by Mr. Elliott on the determination of sulphur in cast iron. This determination consists in the liberation of the sulphur in the form of sulphuretted hydrogen, absorption of the latter by solution of soda, and estimation of the H_2S in the acidified soda solution by means of a standard solution of iodine.

Mr. E. A. LETTS, on the composition of hyposulphites. Though the salts of the hyposulphurous acid have been comparatively well studied, much difference exists as to their chemical constitution. Mr. Letts undertook some experiments to ascertain whether hydrogen was to be regarded as an essential constituent of the hyposulphites. The salts submitted to investigation were those of sodium, barium, lead, strontium, magnesium, nickel, and cobalt, and the result of the experiments was that hydrogen is not necessary for the chemical constitution of the hyposulphites.

The Society then adjourned till Nov. 17th.

PHARMACEUTICAL SOCIETY OF GREAT BRITAIN.

(Reported specially for this Journal.)

EVENING MEETING, WEDNESDAY, NOVEMBER 2ND,

MR. HASELDEN, Vice-President, in the chair.

The minutes of the preceding meeting having been read, and subsequent donations to the library and museum acknowledged, Mr. E. A. Webb proceeded to make some remarks on a

SPECIMEN OF FALSELY-PACKED CHIRETTA.

The packet of chiretta to which Mr. Webb drew attention had been presented to the museum by Mr. H. S. Evans, and was curious from the centre being composed of a carefully tied-up package of a distinct plant. In this Mr. Webb at once recognised a madder of some sort, which he suspected might be munjeet, *Rubia Cordifolia*. He was confirmed in his views by the opinions of Mr. D. Hanbury, Mr. M. C. Cooke, and by chemical evidence, consisting in the precipitation of alizarine by diluting with water a solution obtained by digesting the stems in strong sulphuric acid. Mr. Webb then described the chief physical characteristics by which munjeet may be distinguished from chiretta, and concluded by stating that, at the time the package was imported, chiretta was between two and three shillings a pound, whilst munjeet was only fourpence or sixpence; the motive for the false packing being thus rendered evident.

Mr. TILDEN asked if Mr. Webb was sure he had really obtained alizarine from the plant, as the appearance might be due to purpurine. Alizarine was not contained in *Rubia Cordifolia*; whilst Dr. Stenhouse had obtained mungistine from the plant in the shape of golden scales.

Mr. WEBB said that he had carefully tested the product of his experiments, and had no doubt that his conclusions were correct. He had obtained the precipitate in an amorphous condition; by sublimation the amorphous substance yielded crystals very similar to alizarine.

PROFESSOR BENTLEY commented on the importance of bringing such frauds under the notice of the Society immediately they were met with, as in many cases the adulteration would not be so palpable as in the one now before them, so that it was necessary they should be on their guard. He had never met with chiretta adulterated in the manner described by Mr. Webb before; in fact, the

examination of a number of samples had led him to conclude that chiretta was very little subject to adulteration. In the present instance he had no doubt the plant in the centre of the packet was uninject.

Mr. J. B. Barnes read a paper containing the results of experiments on some of

THE INFUSIONS OF THE PHARMACOPÆIA.

The object of this communication was to show that the time occupied in making infusions might be reduced still further than had already been done without altering the character of the product. The author had prepared two tables, showing the results of experiments on infusions prepared according to the time ordered in the Pharmacopœia, and on infusions not so prepared; in other respects the two sets of experiments were comparable in every detail. The author experimented on the infusions of bearberry, buchu, cascara, cinchona, digitalis, dulcamara, gentian, hop, linseed, rhubarb, senega, senna, serpentaria, and valerian. The results were compared in respect to specific gravity and the amount of dry extract obtained by evaporating the infusion on a water bath and drying the residue in a water-oven at 212° F. until the weight became constant. The conclusion arrived at by Mr. Barnes was, that without otherwise modifying the method of making infusions, those of digitalis and serpentaria can be prepared in one-fourth the time ordered in the Pharmacopœia, whilst the remainder of those included in his experiments and enumerated above may be prepared in one-half the time so ordered. He trusted the Pharmacopœia committee would pay the necessary attention to the matter.

In reply to a query by Dr. ATTFIELD, Mr. Barnes said that besides estimating the weight of extract, he had also judged of the character of the infusions by the nose and palate. Dr. Attfield also suggested the advisability of ascertaining, in the case of cinchona, for example, whether there was the same proportion of the alkaloids in each case.

The CHAIRMAN thought it important to know that an infusion might be made in half an hour equally as well as in one or two hours. Although infusions were not ordered as much as formerly, he still thought a fresh infusion, employed as a stomachic, was much better than a tincture of the same substance. As the delay in the preparation of infusions probably influenced medical men in this respect, he thought the matter well worth the attention of the Pharmacopœia Committee.

Mr. BASS asked if the extract was readily soluble in the same amount of water as that employed in its preparation, and whether the solution so prepared differed perceptibly in respect to smell, taste, and appearance.

Mr. BARNES had not made such experiments, but in washing out the dishes he found the residue dissolved readily.

Mr. CARTEIGHE thought that, by using a larger proportion of drug, an equally satisfactory result might be obtained in a quarter of an hour.

Mr. UMLEY thought that the extract from infusions made at a high temperature would not re-dissolve readily on account of the albuminous matter being coagulated.

Mr. TILDEN thought it would be hardly fair to alter the mode of making infusions in the manner suggested by Mr. Carteighe. For instance, in the case of the infusion of orange or of buchu, a result would be obtained very different to that obtained by taking a longer time.

Mr. BARNES did not think that by re-dissolving the dry extract of buchu or gentian in water, a solution would be obtained which would represent the true infusion.

Professor REDWOOD thought there were other points to be considered besides time. This matter had received the attention of the Pharmacopœia Committee, and the whole of the infusions had been submitted to a careful examination in respect to the proportion of the ingredients, the duration of the maceration, and the temperature of the water. He believed the product might be deteriorated by reducing the time too much. The mere weight of the extract was not alone to be considered, but other points, to which he had no doubt Mr. Barnes had paid due attention. Many chemists imagined that there was more difficulty in preserving infusions fit for use than the facts would fully warrant; there was no difficulty in preserving the infusions most susceptible to change, by properly bottling them, and closing the neck of the bottle with a stopper of cotton-wool.

Mr. BARNES pointed out that the figures he had given, representing the amounts of dry extract obtained from the infusions of the respective drugs, and showing that the extract obtained in a short space of time corresponded almost exactly in weight with that obtained in a longer time, indicated that a similar result had been achieved in each instance, and he could not conceive how it was possible to suppose that the one infusion was not as good as the other. The weight of the extract simply served as an indication of the result obtained.

The CHAIRMAN thought Mr. Barnes had chosen a very fair way of arriving at something like a definite conclusion; he should not himself like to place reliance on the taste and smell as a means of determining the relative character of the products. Although infusions bottled, as Dr. Redwood had suggested, did not turn mouldy or sour, they soon lost the aroma which characterizes a fresh infusion; he thought a small quantity of alcohol might have the effect of retaining this quality.

Mr. BLAND was satisfied that in making infusion of cinchona, a large proportion of the alkaloids was wasted; that no infusion of cinchona made in one hour would contain all the alkaloids that might be extracted from it.

Mr. UMLEY referred to the preparation of the fluid extract of ergot. He had made considerable quantities with and without the use of ether, and found no difference in the products after keeping four or five months. He had employed water at a temperature of 120° as a solvent.

The CHAIRMAN thought the use of ether unnecessary, and that it involved a waste of material and a waste of time.

Mr. MARTINDALE thought there was a great disadvantage in using ether to exhaust the oil, as it might likewise take with it some of the active principles. He had made the fluid extract as Mr. Umley had suggested, and it was as good as that made in the ordinary way.

Professor REDWOOD said that if the ether was not thoroughly washed, so as entirely to remove the spirit, it would remove some of the active principle of the ergot, whilst pure ether would dissolve the essential oil only.

Mr. UMLEY thought that belladonna plaster made with the alcoholic extract of the root, as suggested by Mr. Balmer, would be an improvement.

The CHAIRMAN announced that the next meeting would take place on Wednesday, December 7.

LONDON CHEMISTS' ASSOCIATION.

ON Thursday, October 13th, Mr. JEWELL in the chair, Mr. BLETSOE read a paper on

THE CONFECTIONS AND OINTMENTS OF THE PHARMACOPÆIA.

He said it would perhaps be thought singular that he had joined these two classes of preparations together for one discussion; but it was not more absurd to join them in that way than it was to scud them out together in jars exactly alike, and with similar labels, which every one knew was a common practice. He had no doubt that when some serious accident occurred, the inventive genius that had given them bottles of every imaginable shape and construction for other preparations would be applied to the production of some new jars, either for confections or ointments, which would plainly show the difference between those remedies, which were so similar in consistence and appearance. After defining what confections or electuaries were, Mr. Bletsoe proceeded to notice some of those at present official in the P. B. He confined his remarks more particularly to Conf. Sennæ, Conf. Sulphuris, and Conf. Terebinthæ. With regard to Conf. Sennæ, he asked why it had been made weaker than that of former pharmacopœias? Had any one complained of its being too active? He considered the alteration purposeless. Conf. Sulphuris, a recent addition, was an elegant and useful preparation, and when fresh was quite pleasant. It should always be made as it was required. Conf. Terebinthæ: he thought the proper method of mixing this might have been given in the Pharmacopœia. On adding the honey some turpentine separated: this should be poured off, and again gradually added with trituration.

Mr. Bletsoe next treated of the ointments of the Pharmacopœia. He remarked first, that though ointments had been in use from time immemorial, the class of preparations

now known under that name differed considerably from those of ancient date. The modern ointments were combinations of medicinal substances, of a more or less active nature, with fatty matter. Lately there had been a tendency to introduce a plasma composed of glycerine and starch, instead of lard, etc. As to benzoated lard, he almost doubted the preservative effects of benzoin on fatty matters; if, however, it really possessed the qualities attributed to it, its use might be much extended. The official ointments were reviewed in alphabetical order.

Ung. Aconitiæ. The use of spirit in making this ointment, Mr. Bletsoe said, was by some considered unnecessary, but it was as much required as oil was in making *Ung. Veratriæ*. *Ung. Atropiæ.* For the sake of uniformity only half a drachm of spirit was ordered in making this ointment; but that quantity was merely sufficient to dissolve four grains of atropia. Talking of uniformity, he said, on looking over the formulæ for ointments, one could scarcely help smiling at some of the fancy quantities of ingredients ordered.

Ung. Cadmii Iodidi was a troublesome ointment to make. What, he asked, was the best method of powdering the iodide? He generally rubbed it down with a little wa'er.

In preparing *Ung. Gallæ Comp.*, he said it was better to rub the opium with water into a thin paste first, and then add the powdered galls with a little oil, and afterwards the benzoated lard.

With respect to the *Ung. Hydarg. Ammoniati*, he said the salt should be made into a thin paste with oil before adding the unguentum simplex. By that means a far smoother ointment was obtained. Mr. Martindale and others had stated that it was unnecessarily strong. Mr. Bletsoe asked why it became of such a nasty yellow colour, which it did if kept long? The directions for making *Ung. Hydargyri Comp.* he thought might be improved. As to *Ung. Hydarg. Oxidi Rubri*, why was not the precipitated oxide ordered instead of the ordinary crystalline preparation? The former made a much better ointment. Speaking of *Ung. Hydargyri Nitratis*, he said enough had been written about it to fill a volume the size of the *Pharmacopœia* itself. He described a plan for making it lately published by Mr. Roseter. He also briefly noticed *Ung. Sulph. Iodidi* and *Ung. Terebinth.*

The CHAIRMAN, in the course of his remarks, said that Mr. Bletsoe had thrown out a very good hint about the employment of different jars for ointments and confections. He thought perhaps a square jar would be better for electuaries.

Mr. WILLMOTT said he had known a case in which a lady took some ointment, and rubbed in some electuary. Such a mistake might easily occur if the lids of the jars were changed. He thought it would be better to introduce a new jar for electuaries than for ointments, as the former were not very frequently ordered. He agreed with Mr. Bletsoe that greater uniformity in the strength of the ointments was desirable.

Mr. BEYNON thought that the old-fashioned ointment jar, which was blue outside and white inside, was the best. A square white jar might be used for electuaries. The ointment labels should be of a distinctive colour, and a "not to be taken" label should be put on the jar itself; at any rate in the case of poisonous ointments.

A vote of thanks was accorded to Mr. Bletsoe and also to the Chairman.

On Thursday, October 20th, Mr. BEEDZLER in the chair, Mr. BELL read a paper on

THE DOUBLE AND TRIPLE SALTS IN GENERAL USE.

He said that most of the double and triple salts employed in pharmacy were introduced to serve one of two purposes, either to render slightly soluble salts more soluble or stable in composition; or, to increase their therapeutic value. As a type of the first class we might take ammonio-citrate of iron; of the second, citrate of iron and quinine. In the first class the alum series held perhaps the most prominent position. Ammonia Alum was the one at present official, and it answered well for almost all commercial and pharmaceutical purposes, while it presented the advantage of being cheap, as it was a home production, which was not the case with potash alum. Ammonia Alum, however, would not do for making Alumen Ustum, or burnt alum as it was called; for when heated it

not only lost its water of crystallization, but part of its ammonia also. He next noticed Iron Alum, a salt in which peroxide of iron took the place of alumina, and gave rise to the pretty pink colour of its crystals. Ammonio-sulphate of iron, a somewhat similar salt, was much used in photography and in analysis, as it was less liable to oxidation than the ordinary proto-sulphate of iron. Carbone Alum, in which oxide of chromium supplied the place of alumina, was a very beautiful salt, but certainly more ornamental than useful. Ammonio-sulphate of copper was used as a test; it was difficult to crystallize, but that could be accomplished by the process given in the French Codex. Ammonio-sulphate of magnesia was also used as a reagent. Mr. Bell next proceeded to notice the important class of citrates. He quoted the experiments made by Draper a few years ago, and reported in the *Pharmaceutical Journal*, on the solubility of some metallic oxides in alkaline citrates. Those investigations were extended to bismuth, lead, iron, and copper. Some of the processes there mentioned were previously known; for ammonio-citrate of iron was then in use, and Mr. Schacht had already invented his Liquor Bismuthi. As to the imitation of the latter in the P. B., he thought it was not a satisfactory preparation, for if kept long a fungus was produced in it by the decomposition of the nitrate of ammonia it contained. Ammonio-citrate of bismuth could be prepared in a scaly form, and a solution might be made from that. Ferri et Quinæ Cit. and Ferri et Strychniæ Cit. were just noticed. A new preparation, Mr. Bell said, had been introduced into the 1867 *Pharmacopœia* under the title of "Sodæ Citro-Tartras Effervescent." Now, as it was not a definite chemical compound, such as its name would lead one to suppose, he thought the Pharmaceutical Conference was scarcely justified in condemning the "So-called Citrate of Magnesia" of commerce in the strong terms it did. Mr. Bell then passed on to notice the tartrates. He first mentioned potassium-tartrate of antimony, observing that it should be used in crystals, not in powder, for making the Vinum Antim., as the latter did not readily dissolve. He briefly spoke of Ferrum Tartaratum, P. B., and Ferri Ammon. Tart. A French chemist had lately proposed a triple tartrate of iron, potash, and ammonia, which he said was more stable when in solution than either potassium or ammonio-tartrate. Speaking of Soda Potass. Tart., Mr. Bell said that Seignette, the old chemist of Rochelle, little thought, when first he made that salt, to what an enormous extent its use would afterwards reach. It, like many other chemicals, was liable to adulteration, alum and borax being sometimes detected in it. Borotartrate of potash, a similar salt, was known in this country as "soluble tartar," but in Germany an ammonio-tartrate of potash was in use under that name. Several oxalates were just noticed, as also the various salts of the bibasic and tribasic phosphoric acids. Mr. Bell described a few of the more important syrups of the phosphates, including Parrish's chemical food, Easton's and Aitken's syrups, and the syrup of hypophosphite of iron and quinine, etc. Lactate of iron, he said, was reputed by some to possess advantages over the citrate. It could easily be prepared in a similar manner to the latter, substituting lactic for citric acid. The double iodides, ammonio-chlorides, double sulphides, and ferro-cyanides of the metals, were also briefly mentioned.

The Chairman, Mr. BEEDZLER, speaking of the recent discussion at the Pharmaceutical Conference on Citrate of Magnesia, said he thought that those who had taken part in it had "made much ado about nothing." Citrate of Magnesia was a commercial article which was universally and deservedly esteemed as a harmless but useful domestic medicine. The name was not chemically correct, but it was too late to alter that now. Ferri et Strychniæ Cit., he thought, was an unnecessary preparation. If a physician wished to prescribe iron and strychnine at the same time, he could better regulate the dose of each by ordering them separately.

Mr. BEYNON spoke of the double salts of iron and quinine, iron and manganese, etc. He described the processes for making several of the syrups of these. He said Easton's and Aitken's syrups, though made by different methods, were identical in composition.

Mr. JEWELL remarked upon the variation in colour of different samples of iron alum; the same thing, he said,

occurred sometimes with citrate of iron and strychnine, and caused much annoyance to dispensers.

A vote of thanks to Mr. Bell and to the Chairman brought the meeting to a close.

TESTIMONIAL TO EMPLOYERS.

ON Wednesday, October 19th, one of those pleasing events so indicative of good feeling between the employers and employed, took place at 16, Coleman-street, City. Messrs. Thomas and Frederick Burbidge, of the well-known firm of Burgoyne, Burbidges and Co., wholesale druggists and manufacturing chemists, were each presented with a handsome silver goblet and salver, accompanied with an illuminated memorial. In addition to the crests engraved on the goblet and salver, the goblets also bore the following inscription:—"Presented to Thomas Burbidge, Esq., by the employés of Messrs. Burgoyne, Burbidges, and Co., as a mark of their esteem and good wishes, 19th October, 1870." A similar inscription was engraved on the goblet presented to Mr. Frederick Burbidge. The goblets and salvers were executed by Messrs. Johnson, Walker, and Tolhurst, silversmiths, of Aldersgate-street. The whole of the arrangements were carried out by a committee appointed by the employés. The committee, consisting of Messrs. Bartliffe, Chamberlain, Close, Firth, Webb, Weeks, Woolgar, and Yaxley, was selected with a view to secure a representative from each department. One of the large rooms in the warehouse was cleared for the occasion, and suitable arrangements made for the presentation. Shortly after 2 o'clock Messrs. Thomas and Frederick Burbidge were greeted with enthusiastic cheering as they ascended the stairs most tastefully decorated with bouquets of flowers kindly presented by Mr. Henry Potter, of Farringdon-street. Mr. Yaxley was unanimously called upon to occupy the chair, and after some introductory remarks, by Mr. Weeks, addressed specially to the employés, delivered the following address:—"Messrs. Thomas and Frederick Burbidge. Gentlemen,—As the Chairman, and therefore the representative of my fellow-workers in your establishment, it is my great privilege and pleasure to occupy the position I hold to-day. Gentlemen,—The object of our asking you to meet us is to testify to you that the many kindnesses we have received, under various circumstances at your hands, and the good wishes each and all of us bear to you for your future prosperity, called for something more enduring than mere words or acts of duty. It is to the credit of Mr. Charles Chamberlain, the idea was started of presenting a testimonial to you. Gentlemen, that idea has culminated in the present proceedings. Out of the number of your employés, you will find that eighty-eight have contributed their portion to these testimonials; and with one or two exceptions—from illness and business arrangements—are now present. For many reasons it was not considered expedient by the committee appointed to take the management of these proceedings, to solicit from the juniors or from those recently engaged in your establishment, any contribution whatever, and we trust this arrangement will be approved of by you. Gentlemen,—We are deeply grateful for the interest you take in us—individually and collectively; our Benevolent and Excursion Funds receive at your hands a large amount of support, and in any amusements we have hitherto adopted, we have always found you to take the deepest interest, not only assisting us by your purse, but by your presence and counsel. It is now my pleasing duty to ask you to accept these small tributes of our regard, presenting you, Mr. Thomas Burbidge, with a silver goblet and salver, and an illuminated memorial, and you, Mr. Frederick Burbidge, with a silver goblet and salver, and an illuminated memorial. We thank you for your courtesy in meeting us to-day, and assure you of our united efforts to place your business in a still higher position than that it has already attained, and wish you long life and health to enjoy the fruits of your enterprise." Mr. Yaxley was frequently cheered during the delivery of this address, which gave great satisfaction to every one who heard it. Mr. Thomas Burbidge, in thanking the employés for his testimonial, made some most suitable remarks, and was followed by Mr. Frederick Burbidge, who delivered a very effective speech on the rise and progress of

the establishment, and concluded by some encouraging words to the heads of the various departments, and some excellent advice to the juniors. A vote of thanks to the Committee was proposed by Mr. Henry Goddard, of the warehouse, and seconded by Mr. Henry Furley, of the counting-house, which was briefly acknowledged by Mr. Firth on behalf of the committee. A vote of thanks was proposed by Mr. Close to Mr. Joseph Attwood for the admirable manner in which he had executed the illuminations, who remarked that they not only did Mr. Attwood great credit, but that it was highly creditable to any establishment to find a gentleman amongst its own staff with such artistic ability as he had displayed in the execution of the memorials. It is worthy of remark that the two members of the committee (Mr. Charles Chamberlain and Mr. John Woolgar) who uncovered the testimonials at the close of Mr. Yaxley's address, have been in the employ of the firm for nearly twenty years.

THE NEW LORD MAYOR.

The City Press gives the following brief sketch of the life of the gentleman who for the succeeding year, as Lord Mayor of London, will reflect honour on the craft to which he belongs.

"Mr. Alderman Dakin, the new Lord Mayor, is a man of large and varied experience, and, from his antecedents, may fairly be expected to manifest an active and intelligent influence in the different movements which may mark his term of office, especially that of technical education. A member of a Derbyshire family, he received his education at Knutsford Grammar School, where his studies were pursued with a degree of earnestness which has stood him in good stead in after life; he afterwards continued his studies at the then newly-opened London University. When the time came for him to enter business, he resolved to seek his fortune in London, and accordingly joined the house of Messrs. William Bryden and Co., export druggists, Abchurch-lane, and, stage by stage, worked his way up until he had the satisfaction, in due course, of finding the name of the firm replaced by that of Dakin Brothers, himself being at the head. Though labouring with zeal and untiring assiduity at the office, business was by no means suffered to engross the whole of his attention, for we find that while still a young man he displayed considerable interest in mechanics' institutions, which were just then coming into favour, and in conjunction with Dr. Birkbeck and others, he did much to promote this good work. When the London Mechanics' Institution, in Chancery-lane, was projected, Mr. Dakin rendered valuable help in carrying out the plan, and he subsequently took an active part in the conduct of the various organisations connected with it. It was at this institution that he came before the public as a lecturer, the subject of which he treated being a no less abstruse one than electricity as applied to chemistry, then far less generally understood than it is at present. His lectures were well received, and gained for him the esteem and regard of several eminent literary and scientific men. In 1842, Mr. Dakin entered the Court of Common Council, having been chosen as one of the representatives of the Ward of Candlewick. In course of time he became Deputy of the Ward, and on the death of Alderman Sir George Carroll, in 1861, was selected to succeed him as Alderman. He has at various times filled the post of committee-chairman, his term of office in this capacity being on several occasions marked by events of more than ordinary interest. Thus, he was Chairman of the General Purposes Committee when Mr. Alderman Hale's proposal for the establishment of the Freemen's Orphan School was referred to it, and, having brought up a report favourable to the scheme, he had much to do with the founding of that important institution. When her Majesty visited the City, in 1851, he was chairman of the committee appointed to arrange for her reception, and it was as chairman of another committee that it fell to his lot to lay the foundation of the Lunatic Asylum at Stone. He has also been Deputy-Governor of the Irish Society, and, in 1864, was chosen to fill the office of Sheriff, his colleague in the post being the late Lord Mayor. Mr. Alderman Dakin was one of the early directors of the Metropolitan Railway; has been for

some years chairman of the Great Central Gas Company, and is also President of the Great Western Railway of Canada. He is also a magistrate of the county of Middlesex. He enters upon his term of office of Lord Mayor with a high reputation, and will doubtless prove himself a worthy successor of the many able men who have from time to time upheld the dignity of the Corporation in that capacity; and we may add that Mrs. Dakin will not allow the graceful courtesies and amiable geniality of Lady Mayoress at the Mansion House to suffer in her hands.

LAW AND POLICE.

RECENTLY a question of some importance was decided at the City of London Court, Mr. J. Anderson, Q.C., sitting as Deputy Judge, with reference to the expenses payable by an English acceptor upon the dishonour of a foreign bill of exchange. The action was brought against the Liebig Extract of Meat Company, who dishonoured a bill drawn upon them by their local director at Havre in consequence of receiving a telegram stating that no value had been given for the bill. They, however, paid the bill, which was for £2,000, within four days, but the foreign holder sought to recover, in addition to one-half per cent. as commission of intervention, three other sums of £2 10s., being commission to the Union Bank as follows:—One-eighth to the bank, one-eighth again for remitting the £2,000 from Havre to London to reimburse the holders' agent who had intervened for his honour, and a further one-eighth per cent. for returning the £2,000 to Havre on the bill being paid by the company. Mr. F. O. Crump, barrister for the company, objected to these items as not being necessarily consequent upon the dishonour of the bill. He cited various authorities, and contended, on the principle laid down with reference to re-exchange, that they could not be recovered at law. It was attempted to set up a custom in support of the plaintiff's claim, but after adjourning the case and hearing evidence on both sides, his Honour determined that nothing more could be claimed than the one-half per cent. commission of intervention, and gave judgment for the defendants, with costs.

John Morton, commercial traveller, in the employ of Messrs. Cheeseborough and Phillips, glass bottle manufacturers, Castleford, Yorkshire, was charged before the Hanley bench of magistrates, on the 3rd inst., with having embezzled various sums of money, the property of his employers. His defalcations were stated to be about £487. He had received an account from Mr. Cole, glass manufacturer, of Hanley. The defence was, the prisoner was a partner in the concern, that he did not deny receiving the sums or rendering an account, but that he retained the money as a matter of right. Prisoner was committed for trial at the Sessions.

A young man named William Foster, lately in the employ of Mr. Austerberry, chemist, Hanley, was brought before the magistrates, on the 2nd inst., charged with obtaining money under false pretences. It was stated that Foster was carrying on the business of a quack doctor, under the stylish cognomen of "Mr. Rothwell Ross." He admitted his guilt, and was committed for trial at the sessions.

In the case of Reed against Binko, tried at the Clerkenwell County Court on Nov. 11th, plaintiff (the proprietor of the *Grocer*) sued the defendant, a chemical manufacturer, of No. 3, City-Gardens-row, for £14, the cost of four advertisements inserted in *The Grocer and Oil Trade Review*. Mr. C. E. Mackadam, who appeared for the plaintiff, produced the order, which was signed for fifty-two insertions at £3 10s. each. The defence was, that as the advertisement was for fifty-two insertions at £3 10s. each, and as the fifty-two advertisements had not been inserted the plaintiff could not recover. His Honour ruled that the defence failed so far as the law was concerned, because, the word "each" being inserted in the order for the advertisement, a certain amount of discretion was vested in a newspaper proprietor as to the time at which he would demand payment. The defence having thus failed, his Honour ruled also that the plaintiff was entitled to recover £10 10s., this verdict being given only in consequence of a technical objection as to *The Oil Trade Review* being a distinct paper from the *The Grocer*.

The witness who appeared for the plaintiff took the precaution to have the order stamped at Somerset House, and so protected the Journal from further technical objections.

On the 30th ult., Mr. G. H. Haslam, medical practitioner, of Market Drayton, was summoned under the Vaccination Act, 1867, on giving a false certificate of vaccination for the child of Henry and Sarah Fowler, of Market Drayton. The child was born on the 15th May in the present year, and when three months old Mr. Haslam stated that it was not in a fit state to be vaccinated, and postponed the operation. On the 18th day of October, after an application for a certificate had been made to the parents by Mr. Haywood, one was given, stating that the operation had been successfully performed that day. Mr. W. S. Meek, the public vaccinator for the district, deposed that on the 21st of October no attempt had been made to vaccinate the child, and the parents stated that the operation was performed by Mr. Haslam on the 21st of October. It was stated in defence, that although a reprehensible practice, surgeons often gave certificates before actual vaccination, and that in this case the complainant had not only agreed to it but had almost forced the defendant into so doing. The defendant was committed for trial at the next Shropshire sessions.

GAZETTE.

BANKRUPTS.

HAYWARD, William, 25, St. Mary Axe, spicer merchant, in partnership with others under the style of Hayward, Jones, and Co.
PURDON, Henry, Hirwain, Aberdare, Glamorganshire, surgeon and apothecary.

TAYLER, Thomas Palmer, 101, Drury-lane, Strand, chemist and druggist.

NOTICES OF FIRST GENERAL MEETING FOR ARRANGEMENTS OR COMPOSITIONS.

ALLMAN, Henry, Burslem, tobacconist and druggist.
BATCHELOUR, William, 12, Finsbury-place, South, late Grove-villa, Tunbridge Wells, Kent, M.D.
BEVERIDGE, John, Berwick-upon-Tweed, chemist, druggist, and soda-water manufacturer. (Special general meeting.)
CROOK, John, Bank-road Chemical Works, Clayton, near Manchester, manufacturing chemist.
DALBY, Robert Eastham, Dundas-street, Monkwearmouth Shore, Sunderland, chemist and druggist.
DOLAN, Thomas Michael, Halifax, physician and surgeon.
GREEN, Richard Braithwaite, trading as Richard Green, 33, Higher Ardwick, Manchester, draysalter.
HORSFALL, Thomas Elwin, trading as T. Horsfall and Co., Burley-road, Leeds, manufacturing chemist.
WILLIAMS, Thomas Henry, Beaconsfield-street, Brynmawr, Brecknock, chemist and druggist.

PARTNERSHIPS DISSOLVED.

BLACKMAN and VENNELL, 389, High-street, Cheltenham, Gloucester, chemists and druggists. Debts by Thomas Blackman.
FARQUHARSON and WATSON, Stockton-upon-Tees, Durham, physicians and surgeons.
FRYER and KING, Huddersfield, York, chemists and druggists. Debts by William King, who continues the business.
HARLAND and BURROWS, Mayfield, Sussex, surgeons. Debts by Henry John Hall, at the surgery of the late firm.
JENNINGS and BONOR, Malmesbury, Wilts, surgeons. Debts by Joseph Cave Spicer Jennings.
NORTH OF ENGLAND CHEMICAL COMPANY, Widnes, Lancaster.
WILSON and MONEY, and M. PARKER and Co., cod-liver oil manufacturers, Glasgow. Business continued by James Craig Money, who continues the business under the firm of M. Parker and Co.

Provincial and Foreign Reports.

[We shall be glad to receive from all parts of the world items of interest to our readers. Correspondents who favour us with reports of local meetings, etc., will please to condense them as much as possible; and when local newspapers are sent, we shall be glad to have the passage intended for our notice, specially marked.]

GLASGOW.

GLASGOW CHEMISTS' AND DRUGGISTS' ASSOCIATION.

THE Annual business meeting of this Association was held in the Mechanics' Institution, 38, Bath-street, on Thursday evening, 27th October last. There was a large attendance; Mr. John McMillan, the retiring President, occupied the chair. Upon being called upon, the Treasurer read his

statement, which showed a balance in favour of the Association of £5 12s. 6d., being larger than any previous year. The Secretary then read the following report: "It is very gratifying to notice, from the records of the Association, that a gradual improvement has been going on, from year to year, in the character and importance of the Association, and this progress has not been less marked during the past session, than in any of its predecessors. The roll of members numbers ninety (twenty-three of whom are employers), and, though not what might be expected in such a large city as ours, still it shows a vast increase from what it was five or six years ago. This increase is, doubtless, attributable in some measure to the interest created by the passing of the Pharmacy Act, in 1868, an interest which we trust will never die away. The first step of importance taken last session was the special course of lectures on chemistry, by Dr. Moffat, all of which were well attended and highly appreciated. The other papers of professional interest which were read throughout the session, at the fortnightly meetings, by the members, were most creditable to the authors; while the discussions which generally followed, brought out the great amount of Pharmaceutical knowledge to which many of the members have attained. The President's Prize, for the best essay on 'The Iron Preparations of the B.P.', was not the least important of last year's transactions; and though it is to be regretted that so few took advantage of that respected gentleman's liberality, it is gratifying to note that the papers sent in were of such a character that the examiners had some difficulty in giving their decision. The Annual soiree and ball of the trade was, as usual, a complete success. With regard to the future of the Association, it is very hopeful; arrangements are being made with Dr. Moffat for another short course of lectures on chemistry, and with Mr. Kennedy, on Botany, while 'Volumetrical Analysis,' 'Volatile Oils,' and other subjects, are to be discussed by the members. Your committee also trust that the discussions last session, on the 'Retail Price-list' and 'Early Closing,' will not be lost sight of; a slight improvement has already been made; but we are not to rest satisfied. It is the province of societies like ours to take up such questions, as much as it is the interest of individual members. Success in this, however, as well as in other things, depends altogether upon the unity of the profession. It is, therefore, hoped that there will be a large addition to the membership this session, and that the committee to be appointed will work as earnestly and as faithfully as former committees have done."

The President, in proposing the adoption of the report, delivered his valedictory address, in course of which he took occasion to notice the action taken by this and other societies throughout the kingdom, in reference to the proposed "Regulations for Keeping and Storing Poisons," expressing a hope that, as the pharmacist must now be an educated person by compulsion, it should be left to his own discretion as to the manner in which his business should be conducted, and that, on account of the opposition shown to these proposed regulations last season, no more would be heard of them. The report was then adopted, and the following officers appointed for the ensuing session. Mr. Thomas Davison, M.P.S., President; Mr. R. Brodie, Vice-President; Mr. T. D. Cassells, Treasurer; and Mr. J. M. Fairlie, 17, St. George's Cross, Secretary. Votes of thanks to the retiring officers concluded the business of the evening.

LINCOLN.

THE LINCOLN CHEMISTS' ASSOCIATION.

THE first meeting of the Lincoln Chemists' Association for the Session 1870 and 1871, was held on October 18th. Nearly all the members were present, and the following gentlemen were elected:—Mr. W. Harrison, President; Mr. C. Clayton, Vice-President; Mr. C. F. Gada, Hon. Secretary. Councillors: Mr. F. Wrack, Mr. J. Wingate, Mr. W. Cox. Several new members having been elected, the accounts were audited, and the funds found to be in a prosperous condition. This Association has sent several members to Bloomsbury-square for the different examinations, and it is to be hoped that its sphere of usefulness will greatly extend.

LIVERPOOL.

LIVERPOOL CHEMISTS' ASSOCIATION.

THE first general meeting of the twenty-second session was held at the Royal Institution, Colquitt-street, on the 27th October last, the President in the chair.

The officers elected for session 1870-71, are:—

President, Mr. John Abraham; Vice-President, Mr. Edward Davies, F.C.S.; Honorary Treasurer, Mr. John Shaw; Honorary Secretary, Mr. Alfred H. Mason, 56, Hanover-street; Council: Messrs. Barber, Delf, Jones, Murphy, Redford, Sharp, Sunner, Symes.

Professor Attfield, Ph. D., F.C.S., Thomas Hyde Hills, Esq., London, W. W. Stoddart, Esq., F.C.S., F.G.S., Bristol, were unanimously elected honorary members of the Association.

Mr. J. M. Buck was elected a member; Mr. Burnett D. Coben was elected an associate.

Several donations to the library and museum were announced.

Mr. Davies, F.C.S., exhibited a specimen of phosphorus crystallized from fusion, in crystals of peculiar form, and explained its formation.

Mr. Redford called attention to the new form of hydrate of chloral in crystals, and asked how they were formed, and whether their medicinal strength was identical with that of the cake. A discussion followed, after which the President, Mr. John Abraham, delivered his opening address. He referred to two valuable addresses recently—one by Mr. Stoddart, at the Pharmaceutical Conference in this town, and the other by Mr. Schacht, at the commencement of the session of the School of Pharmacy, Bloomsbury-square. With reference to the Liverpool Chemists' Association, he said that Society afforded opportunities for useful discussion on the science of chemistry, and enabled students of pharmacy to acquire at the smallest expense a scientific knowledge of their profession. If the members who had availed themselves of these advantages had been few in number it was no fault of the Association, or of those who provided instruction in connection with it. Should any friends of the Association think that more should be done, he said let them help, and if they did not accord their assistance he ventured to think that they should not endeavour to discourage those who attempted something. Mr. Schacht, in his address, had expressed an opinion that the Pharmaceutical Society should do more than it has hitherto done to promote education in the provinces. He (the Chairman) desired to know how Mr. Schacht and others proposed to effect their object, for he feared that more was expected from the Pharmaceutical Society than the funds at their disposal would accomplish. It occurred to him that possibly the Society might be instrumental in procuring the occasional services of lecturers in places where no competent instructor resides, but where a class would bear the whole or part of the expense. The idea had hitherto prevailed that if an apprentice were not proficient at the close of his term of apprenticeship he could still acquire the requisite knowledge in another establishment; but that was not in accordance with the modern notions of pharmacists. A scientific knowledge of chemistry and botany was required by Act of Parliament. This could hardly be acquired behind the counter, even if every employer were qualified to impart it, and they knew that such was not the case, those apprentices who learned nothing except that which was gained in the routine of a shop being exceedingly deficient in the necessary information. Of the now drugs, chloral was the most important. So far as he could learn, they were entirely indebted to the Continent for their supply, and it was by no means of a uniform character. At the same time he could not understand why it could not be made in Lancashire, unless it be that our excise duties on spirit were a preventive. Surely bonded laboratories would be allowed by the Government, the manufacture of tinctures in bond having, he understood, already commenced. The price of opium and its preparations continued high. Perhaps, however, it was still more important to observe that the quality of the opium brought into the market was even more variable than formerly. He was informed that opium supposed to come from Persia, and very similar in odour and appearance, varied in its richness in morphia from 1

to 10 per cent. In connection with this subject, the chairman said that recently some promising specimens were exhibited from a new source, namely, Australia. The adulteration of drugs had lately been curiously illustrated with respect to two important articles—saffron and cochineal—in both of which the weight of the genuine article is largely increased by powders which adhere to them. For the purpose of detection, it had been shown, however, that carbonate of lime is made to adhere to the saffron with scarcely any change of appearance, though chemical tests and the microscope make it apparent. In reference to cochineal, a thin powder was made to adhere to the insects; the powder was not soluble in hydrochloric acid, and it might be micaeons or barytic. It would be seen that the Council of the Pharmaceutical Society had again considered the provisions for the regulation of the dispensing of poisons. This office was conferred upon the Society by Act of Parliament, and he expressed his opinion that every consideration of prudence urged them to discharge the duty. It might be that some mode of effecting the object could be devised less obnoxious than that hitherto proposed, but he believed that the opposition to the regulations which were framed met with was a mistake, though he was quite willing that they should be tried in the first instance as a voluntary system. He then concluded by expressing a hope that prosperity would attend the Association during the session upon which it had now entered.

After the address the President illustrated his observations about saffron and cochineal by experiments, and invited discussion.

Mr. Davies, F.C.S. said that the cochineal had been adulterated with carbonate of barita for some time; but as cochineal had no medicinal virtue he did not think it a matter of much importance to pharmacists.

Mr. Tanner said he had lately had occasion to test a sample of saffron and found 16 per cent of adulteration, which he found to be carbonate of lime; he was at a loss to know how it was made to adhere to the saffron and thought some sticky substance, such as honey, was used, from the sweet taste of the solution.

The President said he had examined some adulterated saffron microscopically, and found the adulteration adhered in grooves, not all over; he thought it was added when the saffron was freshly gathered and damp.

The Secretary said that, unfortunately, when drugs became scarce and thus enhanced in value, with apparently increased demand, adulterated specimens soon made their appearance on the market; he confirmed the observations of the president about opium.

Mr. A. H. Samuels said he had lately received a sample of opium from New Grenada which contained 10 per cent. of morphia. The object of sending it was to test its commercial value with the idea of cultivating the drug.

Mr. Davies, F.C.S., moved a very cordial vote of thanks to the President, for his hopeful and practical address, which was seconded by Mr. Redford, who expressed a hope that the President would impress upon principals the necessity of allowing their apprentices and assistants time to avail themselves of the opportunities for study offered for them, to enable them to meet the requirements of the times.

The President having briefly returned thanks, the meeting separated.

The following are the arrangements, in connection with this Association, for the ensuing session:—

CHEMISTRY—By Edward Davies, F.C.S., Lecturer on Experimental Physics in Queen's College. Lectures on Inorganic and Organic Chemistry, Preparation of Chemical Products used in Pharmacy, Quantitative and Volumetric analysis. Each Lecture will be followed by questioning upon the previous Lecture, and will be illustrated with experiments. The course will commence on Friday, November 4th, from 8 to 9.30 p.m., and will be continued on successive Fridays until the end of April, at the Laboratory, 17 Back Colquitt-street. Fee for the course, one guinea. Pharmaceutical Students will be received at the Laboratory for the study of Practical Chemistry, at any hour between 9 and 5 o'clock. Fee, one guinea and a half for 3 months, two hours per week.

MATERIA MEDICA—By W. Carter, M.B., B.Sc., F.R.C.S.I., Lecturer on Botany and Zoology in Queen's College. The Course will have special reference to the requirements of

the Examinations under the Pharmacy Act, and will be illustrated by specimens from the Museum. **Materia Medica**—Recognition of Drugs, Properties of Drugs, Adulterations of Drugs, Plants and Animals yielding Medicinal Substances, etc., etc. The Lectures will be delivered in the Museum, Royal Institution, on Tuesday evenings, at 8.35, commencing on Tuesday, November 1st, to the end of March, 1871. Fee, one guinea.

BOTANY—By Dr. Carter. Structural and Physiological—Cells and Vessels, Roots, Stems, Leaves, Flowers and Fruit, Functions of the Organs of Vegetation and Reproduction. Systematic Botany and Demonstrations on Plants—General Classification, Linnaean and Natural Systems, Distinctive Characters of the principal British Natural Orders. Attention will be paid to the Recognition of Plants by dried and fresh specimens and plates. The Class will be held on Tuesday evenings, at 8.35, commencing April 4th, until the end of July, 1871. Fee, one guinea.

MANCHESTER.

MANCHESTER CHEMISTS' AND DRUGGISTS' ASSOCIATION.

The first ordinary monthly meeting of the session was held in the Memorial Hall, Albert-square, on Friday evening, November 4th, Mr. W. S. Brown, President, in the chair. Tea was served at 7 p.m.

The formal business of the meeting included the election of about twenty new associates.

A resolution was passed expressive of the deep regret felt by the officers and members of the Association on hearing of the death of Mr. Charles Wright, so long and honourably connected with the business in Manchester. Letters were read from Professor Attfield and Mr. T. H. Hills, expressing their satisfaction in having been elected honorary members of the Association.

The President then called upon Mr. Benger to introduce the subject chosen for discussion, "Pharmaceutical Education and Apprenticeship," by reading a paper he had contributed to the British Pharmaceutical Conference. Mr. Benger having read this paper, added, it was scarcely an appropriate introduction of the subject to a local association. He hoped nothing he had said would be construed into disrespect for any of the older members of the trade. Nothing could be further from his intentions than to depreciate the value of apprenticeships served to some non-scientific chemists and druggists. There are hundreds of thoroughly practical men whose success amply testifies to the wisdom and skill with which they have conducted their businesses. The privilege of serving an apprenticeship to such men is great, and is appreciated by all sensible young men. Business habits cannot be acquired in the lecture-room, but by the careful observant study of the business transactions of honourable men. An important point seemed to be, how much and what kind of personal scientific instruction the apprentice can reasonably expect to receive at the hands of his master. He must depend mainly on his own efforts. He pays a premium to be introduced into a special field of observation, the amount of premium generally depending upon the extent of that field. It is essential to his success that he shall have acquired previously, or at an early stage of his apprenticeship, some knowledge of the sciences bearing upon pharmacy. Should his master be competent and willing to undertake the direction of his studies in these subjects, so much the more money value should be attached to the indenture; but this should be clearly understood by the contracting parties. It must not be assumed that a body of men, accustomed to conduct businesses in which scientific knowledge has been often well-nigh superfluous, shall, upon the passing of a Pharmacy Act, be able suddenly to transform themselves into professors of chemistry and botany. Should the medical profession confine itself more strictly to the practice of its legitimate duties, the rising generation of pharmacists may, and doubtless will, have more general need of scientific knowledge; and having availed themselves of the facilities now afforded for its acquirement, will in their turn be competent to instruct their apprentices in the higher branches of pharmaceutical education. In ordinary apprenticeships the master's responsibility does not extend so far. On the other hand, accurate scientific knowledge of no trifling nature is absolutely

demanded by the requirements of the Pharmacy Act, and the apprentice has a perfect right to inquire what opportunities will be afforded for fulfilling those requirements. In London and large provincial centres like our own, where courses of lectures are provided, and a library and museum are open for study, much difficulty need not be apprehended; but there still remains a large number of apprentice-taking businesses scattered throughout the smaller towns of the country, where such opportunities do not exist; and in such situations, a young man who had previously become possessed of a sound elementary scientific education, would have many advantages over his fellows located in large cities, and more leisure and more opportunities for following some of his studies. It is probable that the new school system about to be introduced by Government will afford such an education, otherwise it might be given in special technical schools, as he had suggested; failing these it will always be desirable that the apprentice, on completing his term, shall obtain employment where the efforts of local association have provided the necessary means of scientific education. There is, in the present day, much danger of regarding the passing of examinations as the main object of study, and an inclination to do just so much, and no more, than would ensure that end. It is this spirit which encourages the pernicious system of cramming. The chief aim of elementary scientific education must be to create a taste for, and a love of the subject. In conclusion, he quoted some remarks bearing on this by the late Dr. Channing:—"The mark of a good teacher is not only that he produces great efforts in his pupils, but that he disengages them from his care, conscious of having received only the foundation of knowledge, and anxious and resolved to improve themselves. One of the sure signs of the low state of instruction among us is that the young on leaving school feel as if the work of intellectual culture were done, and that they give up steady, vigorous effort for higher truth and wisdom and knowledge. . . . The universe is charged with the office of education. Innumerable voices come from all they see, meet, feel. It is not confined to a few books anxiously selected by parental care; nature, society, experience, are volumes opened everywhere, and perpetually before their eyes. They take lessons from every object within the sphere of their senses, from the sun and stars, from the flowers of spring, and from the fruits of autumn, from every associate, from the pursuits, trades, professions in which they move. All these, and more than these, are appointed to teach, awaken, and develop the mind."

Mr. Waterhouse (Ashton) agreed in the main with what had been said, but he thought if apprentices had received a good English education, there would be no great difficulty about technical matters, with the help of associations like our own.

Mr. Siebold remarked on the much larger proportion of successful candidates in the examinations than formerly, and attributed this partly to the help of local associations.

Mr. Wilkinson said that all the eleven apprentices who had presented themselves at the last "preliminary" in Manchester had passed; still, there was a very large proportion of those who had examinations to pass, who could not, or did not, avail themselves of the lectures and classes now going on.

Mr. Woolley, alluding to the proposed assistance from the Pharmaceutical Society, thought such help should be at first directed to those who had entered the business previous to the passing of the Pharmacy Act.

The Chairman, Mr. Siebold, Mr. Bestock, and others, spoke with approval of the class for mutual improvement which had just been formed amongst the associates, the chairman promising that the Council would give it all possible assistance and encouragement.

NOTTINGHAM.

NOTTINGHAM AND NOTTS CHEMISTS' ASSOCIATION.—SESSION 1870-1871.

THE first general meeting was held in the rooms of the Society, Britannia Chambers, on Friday evening, Oct. 21; the President, Mr. J. H. Atherton, F.C.S., in the chair. Several donations to the Society were announced, and the thanks of the Society were heartily accorded to the donors.

Mr. Burnie's report of the Botany Class was read by the President, and the prize for the most efficient was awarded to Mr. Bothamley. A number of interesting objects were upon the table, the uses of which were explained by the President; amongst others, the interesting collection of ashes of plants and other substances illustrating the more general diffusion of some of the rarer elementary bodies (including the new metal, Rubidium Indium). These were exhibited at the meeting of the British Pharmaceutical Conference at Liverpool, illustrative of the recent researches by Mr. Stoddart, the President, in the application of spectrum analysis to medicinal substances. Limousin's Oxygen Apparatus for preparing and inhaling oxygen gas, a new drop bottle, and Maw's "Nautilus Life Belt," were also exhibited and explained.

The President then delivered the inaugural address of the Session, in which he reviewed the past work of the Society, and dwelt minutely on the future. Particular attention was given to the provincial education question, the present means of technical education in London and the provinces, the best method of supplying the demand caused by the educational improvement necessitated by the operations of the Pharmacy Act, and the urgent necessity of assistance being rendered to those societies having shown a disposition to help themselves, but which by local peculiarities were debarred from the advantages of any technical schools already existing.

The general aspect of the "Poison Regulation Question" was then fully discussed. The President expressed his opinion that in face of the very few accidents which are attributable to the carelessness of the dispensers, and the higher educational standard imposed, it was unwise to insist on any "compulsory" regulations whatever; but that if the Pharmaceutical Council felt that, in their interests, and in the interests of the public, some extra precautions were necessary, he felt sure that the issue, by the Council, of suggestions to be adopted by those not already using any suitable precautions, would be met and treated with respect and consideration.

The President said he felt bound to allude to the present unsatisfactory condition of the *Journal*. He believed, however, that it was of only a temporary nature, and that an improvement would soon be manifest. He then referred to the principle involved in the issue of such a periodical by a body like the Pharmaceutical Society, and hoped that in time the *Journal* would be simply a record of the proceedings of the Society, and that the trade and miscellaneous matters demanded by chemists throughout the country, would be supplied by the issue of an independent weekly publication like the *Lancet*.

After referring to other practical matters, the President concluded by urging the members and associates to unite in endeavouring by mutual concessions to carry out the work of the Society and the general advancement of Pharmacy.

A cordial vote of thanks to Mr. Atherton for his interesting address was moved by Mr. Rayner, seconded by Mr. Fitzhugh, and carried unanimously.

The following is the proposed work of the ensuing session:—

CHEMISTRY.—A course of thirty lectures, by Mr. George Elder, M.B., on "Inorganic Chemistry," will commence on Monday evening, November 7th, at the Rooms of the Association, and be continued weekly. Time, 9 to 10 p.m. Fee for the course, 5s.

PHARMACY AND MATERIA MEDICA.—A course of twenty-six lectures, by Mr. Mayfield, at the rooms of the Association, commencing on Wednesday evening, November 9th, at 9 o'clock. These lectures have been arranged with special reference to the requirements of the examinations of the Pharmaceutical Society. Fee for the course, 5s.

BOTANY.—Arrangements will be made for a course of lectures on Structural and Physiological Botany, to commence in the spring, full particulars of which will be announced in due course.

PRELIMINARY EXAMINATIONS.—Although not forming part of the ordinary technical education provided by the Society, the Council have arranged for a class, provided a sufficient number of associates make application to join. (No arrangement will be made for less than ten candidates.) Fee for a course of twelve lessons, 5s.

Fragments.

At the taking of the last census in the United States, there were 55,000 physicians, 11,000 druggists; at present there are 74,000 physicians.—The druggists of Kingston (Canada) close at seven o'clock during the winter.—The production of quicksilver in many of the South American mines is seriously diminishing.—The water of the Pool of Siloam is so impure as to have caused fever in Jerusalem.—One of the curators of the University of Edinburgh has just died in Mr. Andrew Fyfe, so says the *Lancet*. Observe the grammar.—Sulphur is found in California.—What is the difference between a pill and a bill? One is hard to get up, and the other is hard to get down.—A statue of Sir Humphrey Davy is about to be erected at Penzance.—The sugar cane is the surest crop that can be raised. Insects never attack it, and it is generally free from disease.—The estimated yield of gold in the colony of Victoria for the quarter ending June 30th, 1870, was 308,872 ounces and 15 pennyweights.—“Hospital Sunday” in Birmingham produced this year the sum of £3,947 10s. 7½d.—Four pounds of gunpowder unaccountably exploded in the shop of Mr. J. Kendrick, chemist, Birmingham, smashing the front window and otherwise damaging the surrounding fixtures.—Horace Greeley says: “The darkest hour in any man's career is that wherein he first schemes how to make a dollar by an easier method than by squarely earning it.”—The *London Figaro* says that by boiling a little vinegar at the same time that cabbages or onions are being cooked, the unpleasant odour of these will be perfectly masked.—*Nature* calculates the force of the explosion of the gunpowder used for a charge in the Woolwich 300-pounder as equal to three million horsepower.—Mr. Lawson Tait, surgeon, of Birmingham, has been entrusted with the task of editing the posthumous works of the late Sir James Simpson, of Edinburgh.—A novel mode of electing a hospital officer took place at the Queen's Hospital, Birmingham, on the 7th inst. One hundred governors selected by ballot from the whole number formed a committee for the election of an obstetric surgeon to the institution. Thus, the old system of canvassing was done away with. Mr. John Clay was elected by a majority of 25.—Dr. Liebrich is now in London, and is frequently at the Moorfields Hospital.—The authorities in India are taking steps to promote the vigorous cultivation of ipecacuanha.

Trade Memoranda.

We notice that the daughter of John Bond's Marking Ink was again successful at the Workmen's International Exhibition in obtaining the prize medal on marking inks. A similar prize was awarded to Mr. Cathery for his dog soap.

Some suspicious people imagine that Mr. Horniman has had a commercial object in view in instructing the public about “Faced Teas.” Possibly; but from a report on teas in the *Food Journal* by Dr. Muter, there seems no doubt that we are frightfully imposed upon by the grocers, who deserve all the odium which Mr. Horniman has cast on them. Thirty-five samples of tea were bought in London at prices ranging from 1s. 4d. to 2s. 8d. Here, for instance, is a treat for housekeepers: No. 20, cost 2s., described as a mixture of common Moring and Kaisow Congou, stalky, broken and dusty, exhausted leaves rendered astrigent with catechu, present in considerable quantity; the flavour resembles mingled sugar and varnish; is most offensive; real value, “worthless.” Or take No. 26, which sells at 1s. 8d., and is said to be an interesting amalgamation of Indian and China siftings, broken seeds, scorched buds, decayed wood, rice husks, fragments of reeds, stones, and unknown twigs. Real value 6d. per lb. As to the colouring, the writer says: “The detection and examination of the facing is simple, as its presence may be at once ascertained, by either examining the tea with a magnifying lens, or by simply washing it off by agitation with cold water. The determination of its nature after removal is accomplished by the usual processes of qualitative analysis, into which

it is not our province in these popular articles to enter. We may, however, indicate the manner of detecting Prussian blue, because this “facing” is at once the most dangerous, and yet very easy to discover. Let the green tea be violently shaken up in a little bottle with some cold water, and the resulting fluid quickly poured into a wine-glass to settle. The blue powder thus detached from the tea will subside, and the water having been carefully poured off, it will remain at the bottom of the glass. If a few drops of strong solution of washing soda be now added to the powder, it will change from blue to dirty brown, thus indicating the presence of Prussian blue.”

The Great Eastern Railway Company are open to receive tenders for the supply of varnish, colours, and drysalteries. Open to November 22nd.

Messrs. Dunn, Hewitt, and Co., of Pentonville, on Wednesday last, inaugurated with a luncheon the starting of a new engine used in the process of cocoa manufacture. Mrs. Dunn started the engine.

We need hardly remind our readers that the respirator season is now upon them. Messrs. Bourne and Taylor have called our attention to the two glass counter cases which they supply, containing assortments of these instruments. The largest is a very handsome one with bent glass front. The chief novelties among the respirators themselves, are those containing layers of cotton wool, adapted to the mouth and nose, as suggested by Professor Tyndall. Pattison's lung protector too is another prominent and seasonable article for show, and it sells readily in London.

Mr. H. Lloyd (late of Dawlish), has taken the business of Messrs. Walter Rew and Co., of Sandgate.

The *British Medical Journal*, referring to Fox's Palatable Oils, writes:—“We have been slow to give an opinion of these because we had received, in the first instance, two conflicting verdicts from physicians on whose judgment we should have been disposed almost equally to rely. A tolerably extensive series of experiments has, however, ended favourably. In one instance, fourteen healthy people of uninitiated tastes have taken a couple of doses each of the cod-liver oil, and have agreed in reporting it to us as tasteless, if not palatable. We get, too, very favourable reports as to the castor oil. Relying, then, on this vicarious judgment, we may pronounce the title claimed by Messrs. Fox to be justified by fact. On the other hand, the chemical trials to which the samples have been subjected have led to equally favourable results. In losing a large part of their unpalatableness, the products of these manufacturers retain their full therapeutic value.”

Messrs. Redington, Hostetter, and Co., of San Francisco, who are agents for the CHEMIST AND DRUGGIST for the best part of the Pacific Coast of North America, have lately removed their business from Front-street, to Market-street, of that prosperous city. We believe we are right in stating that their warehouses now form the largest drug establishment in the United States, which is saying a good deal.

Mr. John R. Jackson, Curator of the Kew Gardens, writes an interesting article on Cocoa in *Nature*. He thinks the use of this beverage is gradually displacing the employment of coffee in this country. The prepared cocoas in the market are almost invariably adulterated, generally in a harmless enough manner. Reviewing some of these sold at prices varying from 6d. to 4s. per lb., Mr. Jackson apparently finds “Cocoa Essence” (Cadbury's) to be the only pure form of prepared cocoa to be obtained. Of this article he speaks very highly. Some wood-cuts are appended to the article showing the microscopic appearance of several prepared cocoas, and these explain how it is possible to advertise and pack in tin foil and showy wrappers elaborately prepared cocoas at the same cost or even at less than the price of cocoa nibs.

It is wonderful with what persistence the old measure for a pint clings to us. In medicine, by Oss, 8 oz. is almost invariably meant, though dispensers cannot do wrong by employing the imperial measure. In wines the illegal system still prevails, and we cannot but wish continued success to the Standard Measure Wine Company, who are trying to reform this anomaly.



THE USE OF A PILL-SCOOP.

TO THE EDITOR OF THE "CHEMIST AND DRUGGIST."

SIR,—As I have no pecuniary interest in the Pill-scoop exhibited at Liverpool, and noted by you as a "superfluous exercise of genius," I trust you will not think me impertinent in offering a few words upon its uses. When lecturing upon pharmacy ten or twelve years ago, I first drew the attention of my class to the convenience of a scoop of this form which I had at that time recently constructed for my own use. The fact that it has been in constant use, and has been appreciated by all the dispensers I have had in my establishment since that time, might establish the fact, but not the mode of its utility.

The dispenser after dividing the pills, gives them the finishing touch by rolling them under the pill-finisher on the slab of the machine, and in the absence of the scoop he tilts the machine, rolling the pills into the tray, then takes the tray out and pours the pills into the box; or he may lift them from the slab with finger and thumb, with or without the aid of a knife. But in this mode every dispenser must have experienced the annoyance of a pill rolling away and having to be searched for, and perhaps trodden on in the search. A flat-edged scoop enables the pills to be lifted with less time and trouble, and less chance of their being spilled than occurs without it. If the pills are to be coated, as is now frequently done by rolling them in varnish, and afterwards in a tray of powder, the use of the scoop is doubled, as the transfer of the pills from the tray of powder to the box cannot be cleanly and rapidly effected without a scoop, and by no form of scoop so readily as one having a flat edge upon which the pills will roll with facility, and a curved edge at the other end out of which they conveniently roll into the box, leaving behind them on the scoop any superfluous powder.

I have just induced Messrs. Bourne and Taylor to make the scoops, under the impression that they would be useful to many of my fellow pharmacists, and having done so, am not willing that their sale should be spoiled by their being heralded with the reputation of superfluity.—Yours, etc.,

BARNARD S. PROCTOR.

Grey-street, Newcastle, November, 1870.

NOT GUILTY.

TO THE EDITOR OF THE CHEMIST AND DRUGGIST.

SIR,—Seeing an article in your journal of last month concerning the present price of leeches—stating that the leech merchants of London were forming a society among themselves to fix the prices detrimental to the interests of chemists generally—we beg to say the high price of leeches at present is entirely caused by the Franco-Prussian war, the demand being greater than supply, owing to the disturbance of trade in both countries. For ourselves we have entered into no society for the purpose you name, and shall as soon as possible be pleased to return to our former prices, though we see no prospect of being able to do so for some time; as, should peace be proclaimed quickly, it will take some time before trade will flow into its natural channels again.

Trusting you will give this a space in your valuable journal.

We are, Sir, your obedient servants,
FITCH AND NOTTINGHAM.

16 and 17, St. Peter-street, Hackney-road, N.E., Nov. 3.

THE MANURE PROBLEM.

TO THE EDITOR OF THE "CHEMIST AND DRUGGIST."

SIR,—In your last issue there is an article on the experiments for utilizing sewage on the A. B. C. process, and the probable results. I find the advocates of that system are sanguine as to the profits. Now, if it will pay to extract fertilizing properties from sewage, certainly it will pay better to economize the richest part of town sewage, before it is made liquid, by collecting it from dry closets. I have been trying experiments for the last ten years to deodorize human excreta, and I find the cheapest ingredients are—4 oz. dry fresh lime, 4 oz. chloride of sodium, and $\frac{1}{2}$ oz. powdered alum, mixed together and put to the excreta daily, for a family of six. The best thing for a receiver is an enamelled iron dish-shaped shovel (with handle, so as to be easily emptied), to be put under the seat of the closet, and to draw out in a convenient place. Either of the above so far preserves or deodorizes the excreta as to make it perfectly safe for removal, either alone or mixed with dust and ashes, which are carted away. Some might object to the price of the ingredients. I consider the cost of the lime or salts are not more than the worth that is added to the weight of the manure, and making it still richer in fertilizing power. I have made a calculation of the quantity and value of this the richest of manures that is wasted to our country—nay, more than wasted, for it is now to our towns a source of disease and death, by being turned into the drains, causing poisonous gases to be driven back into towns by the back draughts of the sewers, also polluting the rivers and the atmosphere in the surrounding country. Calculating, in London alone, with its three and a half million inhabitants, there might be collected 450 tons daily, or 164,250 tons yearly; or take the population of England living in towns where this highly fertilizing power is wasted, would give about 822,000 tons yearly. The extra amount of produce this 822,000 tons of the richest manure would give back to the country would be enormous. I have tried this manure in my garden, and got three splendid crops from one dressing, but never could get more than one crop from guano, therefore proving that land dressing with dry closet manure is powerfully fertilizing for at least three years. As every eatable in England is so very dear, I submit that our legislators ought to take this matter up, and prevent this waste of Nature's gift for Nature's replenishment.

I am, Sir, yours obediently,
C. EMERSON.

West Hartlepool, Oct. 28th.

PATTERN AND SAMPLE POST.

TO THE EDITOR OF THE CHEMIST AND DRUGGIST.

SIR,—May I request the insertion in your journal of the following letter relating to a subject just now exciting much public attention?

The "Pattern Sample Post" has been in operation some years, and has proved a boon of which the public have largely availed themselves. Originally, no articles of intrinsic value could be sent by it; but, after a while, permission was given to send goods of intrinsic value (that is, goods not only sent as patterns, but goods, actually sold), the rate being $\frac{1}{2}$ d. per 1 oz., and the weight not to exceed 24 ozs.

Last January an alteration was made, reducing the weights to 12 ozs., and also reducing the rate to $\frac{1}{4}$ d. per 1 oz.

On the 1st of October last, another alteration was made, in the following words:—"The Pattern Sample Post is restricted to bona fide trade patterns and samples of merchandise. Goods sent for sale, or in execution of an order (however small the quantity), are not admissible."

The only apparent excuse for this alteration is reduction of weight; but the same authority states: "Books, papers, etc., etc., may be sent up to fourteen pounds in weight by Book Post."

The alteration seems to me, harsh and injurious to trade, while I fail to see how it can materially benefit the Post-Office.

Many letters of remonstrance have been addressed to the

Post Office authorities by traders in Brighton and other places; But so far as can be learnt, no reply or explanation has been received.

My object in addressing you is to bring this subject before your subscribers, and to request all those who are in any way affected by the recent alteration to communicate with me personally, or by letter, at these offices, with a view to take steps for the removal of the present restriction.

Trusting you will consider this letter as sufficiently bearing on the interests of the public to grant it a portion of your valuable space,

I am, Sir, your most obedient Servant,

W. J. BRAMWELL.

Trade Protection Offices.

17, Prince Albert-street, Brighton.



IN last number we gave a formula for a Syrup of Chloral Hydrate. The following we are informed has been generally adopted by west-end houses:—℞. Chloral Hydrat, ʒxiiij. ℥vj., Aq. Distill. ʒss., Syr. Flor. Aurant, ʒivss., Syr. Simplicis, ʒiv. M.

Quæro (Lceds) asks:—"Can you or any of your correspondents supply us with a good formula for concealing the discolouration of a black eye? Something in the form of a paint appears to be a great desideratum. Also, have you a simple and reliable test for olive oils?"

ROOM FOR THE EDUCATION ACT.—A correspondent sends the following copy of a note recently addressed to a well-known chemist in the West of England:—"Sir,—Please for to give the Barrer some Sedleys Powders and Some Bitters for a Draff for a man that has Beeing a Drinking about 3 weeks—the Bitters us for to thake on a-count of having not apetite—and the sedleys powders us on a-count of Seing all kinds of things."

G. Campbell (Leyburn).—Thanks; you will see notice is taken of the subject elsewhere.

Referring to an article of Mr. Ince's in our Almanac (1870), on English and Foreign Formulae, Personne writes to us as follows:—"Mr. Ince assures us that Sparadrap is not an Austrian but a 'Continental' term. If he will look at an old-fashioned English book called Gray's 'Supplement,' I think he will find it as much an island as a 'Continental' term. If I understand the allusion to the English word 'Rob,' and the explanation given it, reference to the same old book shows him to be slightly mistaken in asserting that it means, 'the expressed, strained juice of a fruit evaporated to the consistency of an extract,' thereby implying that sugar forms no part of a 'Rob.' While Rennie says, 'with or without sugar,' Gray gives nine formulae with sugar, and two with honey. What Mr. Ince says of the English word is then not right, but it would be perfectly right of the French word 'Rob,' as he may find by reference to the French 'Dictionnaire de l'Academie,' following which Bouchardat, in his 'Manuel de Matière Medicale,' says: 'On donnait le nom particulier de Robs aux extraits obtenus avec les succs des fruits' (p. 836), giving those of Sureau (Elder), Nerprun (Buckthorn), and Belladone; while Nysten in his 'Dictionnaire de Médecine,' gives four other formulae, all without sugar. I am afraid I have trespassed too much, and yet I venture to give one prescription which may be interesting. Your contemporary, the *Lancet*, branded some time since, the giving of an infusion of Sheepsdung by a poor person to another suffering from jaundice, as 'savage ignorance,' not being so well acquainted with what the editor's own grandfather's tutor may have done. In Fuller's 'Pharmacopœia Extemporanea' (published 1740), among others there is the following for ICTERIC ALE:—'Take of shavings of ivory, 1 ounce, white horehound, 4 handfuls, boil in 6 gallons of new wort to 4, into which hang the underwritten ingredients in a bag. Take roots of sharp-pointed dock half a pound, turmeric, madder, each 2 ounces, of nettles, 4 ounces, herbs of celandine, cleavers, strawberries (leaves and roots), barberry rinds, each 4 handfuls, fresh sheepsdung (ty'd up in a rag), 4 oz., live milipedes, 1 pint, filings of steel, 1 pound; prepare all for use. It enriches

and exalts poor watery blood, corrects crude juices, freeth the liver from obstructions, and cureth cachectic and icteric persons.'

"*Trochisci*" asks:—"Can you or any of your readers kindly give a good form for a cough lozenge paste, or coltsfoot paste?" Perhaps the following will be useful. We find it in the *New York Druggists' Circular*, where it is given as the formula for a popular English cough lozenge. "Lactucarium, 2 dr., Ipecacuanha, 1 dr., Squills, ʒ dr., Extract of liquorice, 2 dr., Sugar, 6 oz. Made into a mass with mucilage of tragacanth, and divided into 20-grain lozenges."

T. W.—Sulphate of copper is not a poison by Act of Parliament.

Mr. R. Methuen (Oldham) complains of especial hardship and risk to the public attending the occasions when chemists and druggists are compelled to attend on juries. We are very much inclined to agree with our correspondent, and think that now the law has definitely declared who is and who is not a chemist, the exemption from service on juries might be extended to the whole body, as there no longer remains the same reason as was formerly given for confining the privilege to pharmaceutical chemists.

The 22nd Section of the new Jury Act is as follows:—Jurors shall be entitled to the following remuneration for their services, that is to say, every special juror, when summoned for the purpose of trying special jury cases, at the rate of £1 1s. for every day of his attendance. The remuneration of a juror, when trying common jury cases shall be at the rate of 10s. for every day of his attendance. The above-mentioned remuneration shall be paid by the parties to the cause to be tried, and for that purpose each of the said parties shall deposit such sum of money as may be determined by any rule of the Court in which the cause is depending, and such deposit shall be made in such manner, at such times, and with such officer as the Court may prescribe. Heretofore the remuneration for common jurors has been 8d. per day.

Subscriber (Glasgow).—We are informed that vesuvians are made by dipping the sticks into a mixture of charcoal and saltpetre, brought to a proper consistency by means of rice paste. The head of the vesuvian is composed of chlorate of potash, phosphorus, and red lead. The flaming vesuvians contain a large proportion of free phosphorus, and are undoubtedly on that account very injurious to persons with decayed teeth, and likely to damage sound teeth.

F. F. (Bradford) asks what is the composition of a certain colourless acid fluid which changes the colour of the hair to a bright golden tint? Had F. F. been a "faithful friend," he would have read the analyses made for us some twenty months ago, by Mr. Matthews, which showed that nitromuriatic acid was the base of most of that class of hair dyes.

Treatment of Blisters.—It is a common error that it is beneficial to break a blister in order to let out the water or blood which fills it. This water or blood is a healing substance, of a kind most appropriate for the parts where the skin is destroyed, and if the blister be allowed to dry, new skin forms more rapidly under it, and much pain is avoided. In exceptional cases, when the blister is very full of fluid, so that it causes much pain by its tension, a small portion of the fluid may be given a chance to escape, by the prick of a fine needle. A blister should also be covered up in some way to protect it from being ruptured by accident.

Genuine Port Wine.—Cider, 14 ozs.; alcohol, 3 ozs.; strong decoction of logwood, 4 ozs.; alum, 40 grains; cream of tartar, 20 grains; white sugar, 1½ oz. This being a native wine is largely patronised in America. By all means make it yourself. It will be much cheaper than to buy it, and you will have the satisfaction of knowing that it is unadulterated.

For Ringworm.—Take: Washed sulphur, 22 grains; carbonate of potash, 8 grains; lard, 1 oz. Mix. Apply to the parts morning and evening, continuing the application sometime after the apparent cure to prevent a return.

(From *New York Druggists' Circular*.)

Croton Oil Pills.—To the oil ordered add a trifle of powdered white soap, enough to form a thin paste of the consistency of honey, and make pills with powdered tragacanth. They become hard and are easily soluble.

New Material for Blisters.—The following formula for the preparation of a blistering material is given by MM. Del-

peeh and Guichard:—Take of gelatine, 30 grains; water, 150 grains; alcohol, 150 grains; cantharidate of potash, 6 grains; glycerine, a sufficient quantity. The liquid is to be painted on thin sheets of gutta-percha, in such quantity that 4 inches square (*i.e.*, 16 square inches) shall receive about one-seventh of a grain of cantharidate of potash. The advantage of cantharidate of potash over cantharidine is that it is not volatile, and does not lose in strength on exposure. It is prepared by the action of potash on cantharidine, and crystallizes in the form of fine scales.

Milk of Roses.—In making milk of roses the chief object should be to produce a perfect emulsion, or one at least which, if it separates after long repose, may be restored to a homogeneous state by slight agitation. It should also be recollect that, though other perfumes may be, and are commonly added to it almost at will, the scent of roses should predominate and form its characteristic one.

ENGLISH MILK OF ROSES.

1. Almonds (blanched)	1½ ounce.
Oil of Almonds	} of each
White Windsor soap	} 1 drachm.
Rose-water	¾ pint.

Make an emulsion; to the strained emulsion add a mixture of—

Essence or spirit of roses	½ fl. drachm.
Alcohol	2½ fl. ounces.

and, subsequently, of—

Rose-water	q. s.
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To make the whole measure one pint, more alcohol is often ordered and used; but much of it is apt to cause the separation of the ingredients. In many samples, and in the inferior ones generally, it is omitted altogether. Some makers add a few drops of oil of bergamot, with two or three drops each of oil of lavender and otto of roses, dissolved in the alcohol.

2. Oil of almonds	} of each 1 ounce.
White Windsor soap	} of each
Salts of tartar	½ drachm.
Boiling water	½ pint.

Triturate and subsequently agitate until perfectly united. When cold, further add, of

Alcohol	2 fl. ounces.
Spirit of roses	a few drops.
Rose-water	q. s.

to make the whole measure a pint. The above are used as cosmetic washes in a similar way to "Gowland's Lotion," also to remove surf, freckles, and acne and other pimples, and eruptions in slight easies.

FRENCH MILK OF ROSES.

1. Tincture of benzoin (simple)	½ fl. ounce.
" " styrax	½ fl. ounce.
Spirit of rose	1 to 2 fl. drachms.
Alcohol	2½ fl. ounces.

Mix, and add gradually, with agitation, of

Rose-water	16½ fl. ounces
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Augustin recommends the addition of a little carbonate of potash (say 1 dr. to the pint) when it is intended to be used as a lotion in acne.

2. Tincture of benzoin (simple)	1 fl. drachm.
Balsam of Peru	20 drops.
Rose-water	½ pint.

The addition of an ounce of alcohol, in lieu of a like quantity of rose-water, improves it.

3. Almond paste	3 drachms.
Rose-water	½ pint.
Tincture of benzoin	½ fl. ounce.

and make an emulsion as before. Use, &c., same as the preceding.

GERMAN MILK OF ROSES.

Dilute solution of diacetate of lead	½ fl. ounce.
Lavender-water	2 fl. drachms.
Alcohol	2½ fl. ounces.
Rose-water	¾ pint.

Mix, with agitation. The alcohol is often improperly omitted, or less is used. It is cooling and astringent, and is employed as a wash, like the preceding; as also in most eruptions, excoriations, &c., but it is more active and less fitted for very frequent use.



[The following list has been compiled expressly for the CHEMIST AND DRUGGIST, by L. de Fontainemoreau Patent Agent, 4, South-street, Finsbury, London; 10, Rue de la Fidélité, Paris; and 33, Rue des Minimes, Brussels.]

Provisional Protection for six months has been granted for the following:—

2145. W. A. Gibbs, of Gilwell Park, Essex. Improvements in drying apparatus for drying agricultural, animal, chemical, and commercial products. Dated 1st August, 1870.
2539. S. S. Brown, of Portsmouth, Hants. Improvements in machinery or apparatus for the manufacture of lint and lint bandages. Dated 22nd September, 1870.
2544. G. T. Bonsfield, of London. Improvements in the manufacture of hydrocarbon oils made from petroleum, bituminous coals, shales, schists, and other bituminous substances. Dated 22nd September, 1870.
2568. H. Highton, M.A., of Putney, Surrey. An improved method of preserving meat, fish, and other alimentary substances. Dated 26th September, 1870.
2577. J. T. Bengough, of Hackney. An improved process for preserving animal and vegetable substances in air-tight vessels. Dated 28th September, 1870.
2596. G. H. Funck, of Fenchurch-street. An improved valve apparatus applicable to vessels for containing petroleum and other volatile oils and spirits. Dated 30th September, 1870.
2632. T. W. Overman, of Paddocks, near Sheffield. Improvements in apparatus for administering medicinie to horses and other animals. Dated 4th October, 1870.
2635. J. Winter, jun., of Wardour street, Soho. Improved apparatus for filling glass bottles and jars with soups, jellies, fruits, and other edibles, for the purpose of preserving them, the said apparatus being also applicable for filling bottles with sauces, wines, spirits, beer, liqueurs, and other still and effervescent beverages; also machinery, in combination with the above apparatus, for corking or stoppering such said bottles and jars. Dated 4th October, 1870.
2641. H. Deacon, of Widnes, Lancaster. Improvements in the manufacture of sulphuric acid. Dated 5th October, 1870.

Letters Patent have been issued for the following:—

1111. T. Baggs, of High Holborn. Improvements in making white lead. Dated 16th April, 1870.
 1233. F. Ransome, of Queen-street-place, Cannon-street. Improvements in the manufacture of artificial stone and in the manufacture of vessels for containing or conveying acids or acid vapours, or heated air or gases. Dated 29th April, 1870.
 1414. J. Agnew, of Liverpool. A new and improved medicinal preparation of cod-liver oil called "cod-liver-oil-jelly." Dated 17th May, 1870.
 1425. J. Castelaz, of Paris. Improvements in the manufacture of artificial alkaloids derived from coal-tar, and in the preparation of salts of the said alkaloids. Dated 18th May, 1870.
 1676. P. Spence, of Newton Heath, Manchester. Improvements in the manufacture of alum, and in obtaining by products in such manufacture applicable to certain useful purposes. Dated 9th June, 1870.
 1800. J. Sinclair, of Manchester. Improvements in respiratory apparatus. Dated 24th June, 1870.
 1823. R. Kell, of Bradford, York. Improvements in treating and distilling petroleum, and in apparatus employed thereon. Dated 27th June, 1870.
- Specifications published during the month. Postage 1d. each extra:—
1870.
485. I. Baggs. Carbonates of ammonia. 4d.
 590. H. W. Deo. Caps for bottles. 8d.
 598. T. Rowatt, jun. Testing petroleum. 4d.
 668. J. Hargreaves and T. Robinson. Manufacture and application of chlorine. 4d.
 648. C. H. Williams. Curing skin diseases in animals. 4d.
 709. J. A. Tatton. Petroleum oil. 4d.
 717. J. Wallace. Distilling. 1s 6d.
 787. D. Spill. Compounds containing xyloidino. 4d.
 794. J. Walker. Bottles. 4d.
 795. E. R. Southby. Distilling crude mineral oils. 4d.
 881. J. Townsead. Treating and utilising by or waste products. d.
 1415. B. Hunt. Pigments. 4d.

Varia.

A GOOD SPECULATION.

In a well-known quarter in Bermondsey stood, some years ago, a large heap of spent tan, or tanner's waste, which kept on increasing till it became a public nuisance, besides occupying the site of valuable business grounds. The local authorities looked at the removal of such a vast heap with considerable dismay. A chemist of humble pretensions, however, came to their assistance, with an offer to remove the whole mass at a shilling a load. The Corporation were considering the offer, and were about to accept it, when it oozed out that the chemist offered them a shilling a load for the privilege of

removing it, and great was their relief and astonishment. It need not be said they gladly accepted the offer; the contract was signed, sealed, and delivered, and much wonder was expressed as to what the man was going to do with the stuff. The sequel speedily showed. The waste tan was mixed with the refuse blood and offal of the city and surrounding abattoirs, removed to a sequestered spot near Gravesend, and thence converted into "Patent Blood Guano." In less than two years, this poor but thoughtful chemist sold the patent tan, etc., to a public company for £10,000. The master produced excellent results and good profits.—*Australian Journal.*

LEAD POISONING.

We have received very important communications on this subject from two of our contributors; the first from Professor F. Crace Calvert, of Manchester, who says:—"In our city great numbers of private houses have on the first floor a bath-room and lavatory, in which is a leaden cistern supplying the hot water required. The contents of the cistern are heated by means of a continuous current of hot water, fed by a boiler placed behind the kitchen range on the ground floor. The cooled water from the cistern returning to the boiler is of course charged with all the lead dissolved from it; and as the occupiers of these houses are either not aware of the action of water on lead, or do not reflect that the water which they take from the kitchen range for domestic purposes has circulated through the cistern above, it is not surprising that many of them fall victims to lead poisoning." Professor Church, of the Royal Agricultural College at Cirencester, points to a similar danger, resulting from the use of gazogenes for preparing aerated waters. He says:—"I have examined a large number of different waters—English and foreign, old and new—and I find one defect universal. The upper part of the long glass tube (through which the aerated liquor is forced from the lower vessel) is fitted into a tube of pewter. The aerated water standing in this dissolves some of its lead; and the first wineglassful of water drawn each time that the apparatus has been left to itself, turns brown when tested with hydrosulphuric acid. Why should not the new tin-lined lead tubes be used for the metal fitting in which the little spring-piston of these machines works?"—*Food Journal.*

DR. MATTHIESSEN.

"Suicide while in a state of temporary insanity" was the verdict of the coroner's jury on the inquiry into the death of the Professor of Chemistry at St. Bartholomew's Hospital. Could there be a sadder opening of the session at the great hospital of London? Dr. Matthiessen was only thirty-nine years of age, and had attained a splendid position. Only last year the Royal Society awarded to him its Royal Medal for his researches in chemistry, and he seems to have been greatly beloved by those who knew him. Our readers will probably have noted the details in the daily papers. A false charge had been made against him, he wrote in a letter he left in his private drawer, "although innocent, yet it blights all my future prospects, and therefore I have resolved to resign all." Then he shut himself in his room, was heard to walk about some time as if in an excited state, and then—was found dead some hours after, sitting as if asleep in his chair, but poisoned by prussic acid. Thus is lost to us in his prime a hard worker in science—a professor in one of our great metropolitan medical schools—who had given an earnest of future fame such as few at his ago have done. 'Tis very sad.—*Medical Press and Circular.*

THE LATE PROFESSOR MILLER.

In the late William Allen Miller, M.D., F.R.S., Professor of Chemistry in King's College, London, whose death was announced yesterday, chemistry has lost an accomplished votary and an effective teacher. Dr. Miller died of apoplexy on the 30th ult., at Liverpool, whither he had gone to take part in the proceedings of the British Association. Dr. Miller was born at Ipswich on the 17th of December 1817, and in his 24th year he became assistant to the late Mr. Daniell, Professor of Chemistry in King's College, London. In 1844 he co-operated with his master in the publication of a paper on the "Electrolysis of Secondary Compounds." In the following year he was elected a Fellow of the Royal

Society, and succeeded Mr. Daniell in the chair of chemistry in King's College. His chief work at this time was his paper on the "Spectra of certain Vapours," published in 1845. In 1849 he again came before the scientific world with a paper on the "Atomic Volumes of Organic Liquids." From this date his time appears to have been chiefly absorbed by other than purely scientific subjects. He held the posts of Treasurer to the Royal Society, President, and afterwards Vice-President, of the Chemical Society, and assayer to the Royal Mint, besides being member of the Science Commission. His later contributions to the scientific periodicals were a paper on "Transparency," in the *Journal of the Chemical Society*, some "Analyses of Gutta Percha," and a *Treatise on Potable Water*. In conjunction with Mr. Huggins, he investigated the spectra of the fixed stars. He is known to the educational world by his voluminous and widely popular *Treatise on Chemistry*, in three parts, which originally appeared from 1855 to 1857, and which has already gone through several editions. Several candidates are already in the field for the Professorship he leaves vacant.



AGAIN we go to press without being able to congratulate our readers on the cessation of the Continental war. True it has as yet lasted but little over three months, but three months of such a struggle as this has been is more than enough for our planet to bear. In City circles undoubtedly, the impression prevails that peace must come soon, and we find the effect of this belief in a rather increased firmness of most of the markets. English capitalists, however, have done their best to protract the war, for say another three months, by the eagerness with which they subscribed to the New French Loan of £10,000,000.

The chemical trade has fluctuated somewhat, but it closes very firmly. Saltpetre declined in price during the month, but a sudden increase of enquiries for it has materially advanced the price within the past few days; at least 2s. per cwt. Our advices from Calcutta, however, speak of quotations there as drooping, and stock abundant. Quicksilver and Mercurials are still dearer, and will probably maintain their advanced value. Citric Acid is dull; but Tartaric, Oxalic, and Cream of Tartar are all well enquired after. Bleaching Powder is also getting dearer.

On the last occurrence of the drug sales the fog compelled their postponement. It is quite easy to understand that a good light is an important aid to the buyers of the *Materia Medica*. The business done has been satisfactory but not speculative. Barks are a trifle lower. Camphor somewhat higher. Gums are very slightly altered in price, Arabic and Shellac only showing an advance. The demand for the latter seems to be purely speculative, but it has lasted for a considerable time. Rhubarb continues to arrive, but of inferior qualities; we want a supply of better samples. Opium is dull. Castor Oil sells well, but prices have not advanced. Hotchkiss' Peppermint is held at firm rates. Musk has declined but sells readily.

OILS.—Linseed has been difficult of sale on the spot here at £29 15s., and rather less has been accepted. Rapo has been in good request, and prices have continued to move upwards. Little business has been done in refined Cotton, and prices have been easier. In Olive Oils little or no business has been done at £48 for Gallipoli down to £44 for Corfu. Transactions in Cocoanut have been unimportant. Palm has been in only limited request. Sperm is rather firmer, 48 tuns Colonial sold by auction at £79 to £80, headmutter £79. Whale of good quality finds buyers at £35 to £36.

PETROLEUM.—Refined Pennsylvanian has continued in good demand, and 1s. 6½d. to 1s. 7d. readily paid for fine quality on spot. Buyers of contract oil for present and forward deliveries at 1s. 6d., at which some contracts have been made extending to March next. Stock 17,816 barrels against 26,000 barrels same time last year, and deliveries last week here 2609 barrels against 2442 barrels same period last year. No change in Coal Oil or Naphtha.

Monthly Price Current.

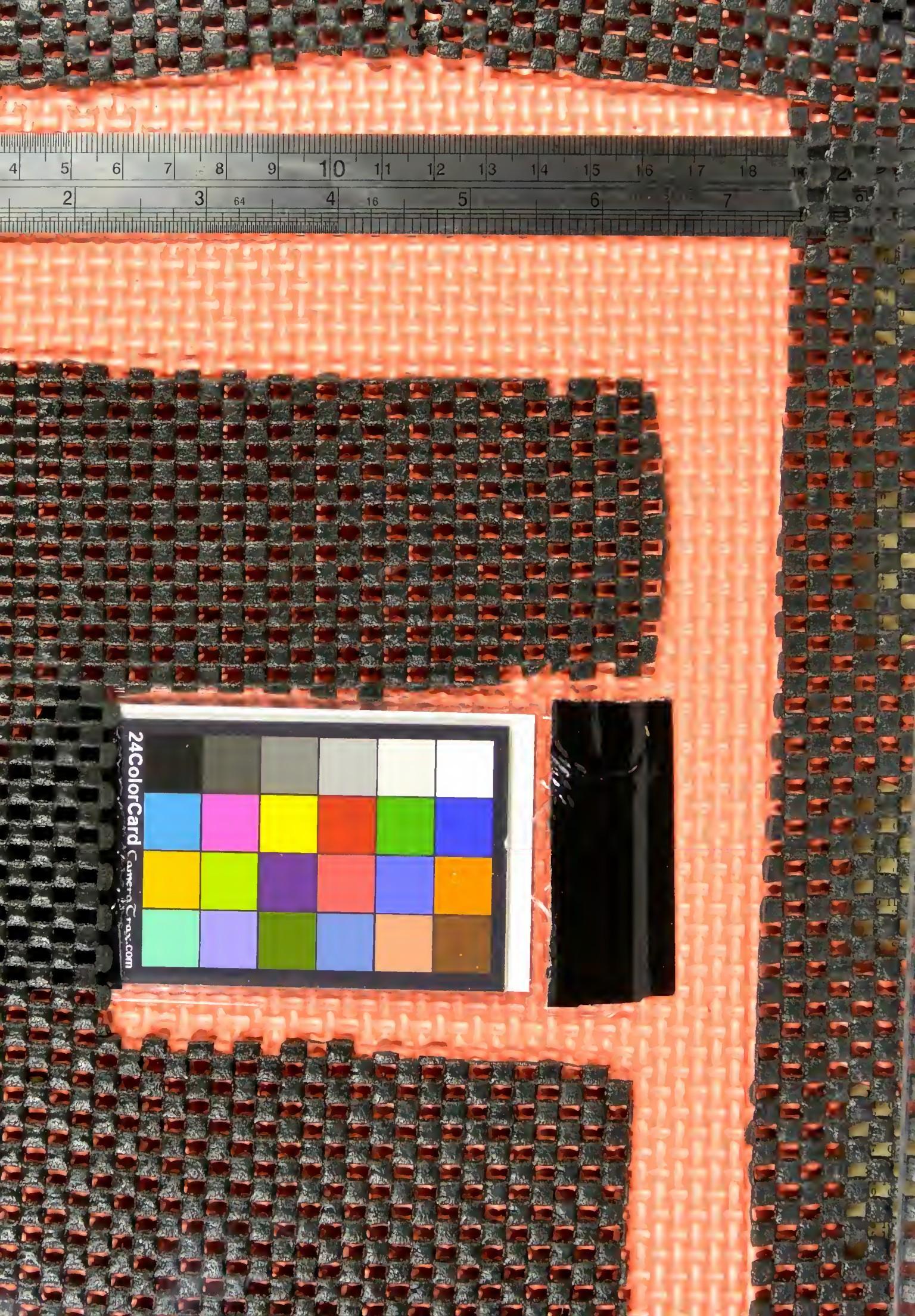
The prices quoted in the following list are those actually obtained in Mincing-lane for articles sold in bulk. Our Retail Subscribers must not expect to purchase at these market prices, but they may draw from them useful conclusions respecting the prices at which articles are offered by the Wholesale Firms.]

CHEMICALS.

	1870.			1869.		
ACIDS—	s.	d.	s.	d.	s.	d.
Acetic	per lb.	0 4	to	0 0	0 4	to
Citric	per lb.	2 4	..	2 4½	2 4	..
Hydrochlor.	per cwt.	4 0	..	7 0	4 0	..
Nitric	per lb.	0 5	..	0 5½	0 5	..
Oxalic	"	0 8	..	0 0	0 7½	..
Sulphuric	"	0 0	..	0 1	0 0	..
Tartaric crystal ..	"	1 3½	..	0 0	1 0	..
powdered	"	1 3½	..	0 0	1 2½	..
ANTIMONY ore.....	per ton	360 0	..	400 0	280 0	..
crudo	per cwt.	44 0	..	45 0	32 0	..
regulus	"	62 0	..	63 0	60 0	..
star	"	0 0	..	0 0	60 0	..
ARSENIC, lump.....	"	15 6	..	16 0	16 0	..
powder.....	"	7 0	..	7 6	7 3	..
BRIMSTONE, rough	per ton	160 0	..	0 0	165 0	..
roll	per cwt.	11 0	..	0 0	11 0	..
flour.....	"	12 0	..	13 0	11 0	..
IODINE, dry	per oz.	0 0	..	0 9½	0 9¾	..
IVORY BLACK, dry	per cwt.	0 9	..	0 0	0 0	..
MAGNESIA, calcined	per lb.	1 2	..	0 0	0 0	..
MERCURY.....	per bottle	189 0	..	0 0	137 0	..
MINIUM, red	per cwt.	21 0	..	0 0	20 9	..
orange	"	31 6	..	32 6	31 6	..
PRECIPITATE, red	per lb.	3 2	..	0 0	2 6	..
white	"	3 0	..	0 0	2 5	..
PRUSSIAN BLUE	"	0 0	..	0 0	0 0	..
SALTS—						
Alum	per ton	145 0	..	150 0	145 0	..
powder	"	160 0	..	165 0	165 0	..
Ammonia:						
Carbonate	per lb.	0 5½	..	0 6	0 5½	..
Hydrochlorate, crude,						
white	per ton	520 0	..	560 0	480 0	..
British (see Sal Ammoniac)						
Sulphate	per ton	320 0	..	325 0	335 0	..
Argol, Cape	per cwt.	55 0	..	73 0	65 0	..
France	"	40 0	..	50 0	45 0	..
Oporto, red	"	22 0	..	24 0	22 0	..
Sicily	"	0 0	..	0 0	32 0	..
Naples, white	"	0 0	..	0 0	55 0	..
Florence, white	"	0 0	..	0 0	65 0	..
red	"	0 0	..	0 0	0 0	..
Ashcs (see Potash and Soda)						
Bleaching powd.	per cwt.	9 3	..	9 6	8 9	..
Borax, crude	"	25 0	..	40 0	25 0	..
(Tincal)	"	45 0	..	60 0	55 0	..
British refnd.	"	68 0	..	70 0	69 0	..
Calomel	per lb.	3 0	..	0 0	2 5	..
Copper:						
Sulphate	per cwt.	23 0	..	24 0	23 6	..
Copperas, green	per ton	50 0	..	60 0	52 6	..
Corrosive Sublimate	per lb.	2 5	..	0 0	1 11	..
Cr. Tartar, French, p. cwt.	88 0	..	90 0	81 0	..	
Venetian grey	"	90 0	..	96 0	83 0	..
brown	"	0 0	..	0 0	90 0	..
Epsom Salts	per cwt.	6 0	..	7 0	7 6	..
Glauber Salts	"	4 6	..	6 0	4 6	..
Lime:						
Acetate, white, per cwt.	12 6	..	23 0	12 6	..	
Magnesia: Carbonato	"	42 6	..	0 0	42 6	..
Potash:						
Bichromate	per lb.	0 5	..	0 5½	0 5	..
Carbonate:						
Potashes, Canada, 1st sort	per cwt.	33 6	..	34 0	0 0	..
Pearlashes, Canada, 1st sort	per cwt.	44 6	..	0 0	0 0	..
Chlorate	per lb.	0 11	..	0 0	0 10½	..
Prussiate	per lb.	1 0	..	0 0	1 0	..
red	"	1 9½	..	1 10	1 9½	..
Tartrate (see Argol and Cream of Tartar)						
Potassium:						
Chloride	per cwt.	10 6	..	13 0	8 0	..
Iodide	per lb.	12 0	..	0 0	12 0	..
Quinine:						
Sulphate, British, in bottles	per oz.	6 3	..	6 4	5 9	..
Sulphate, French	"	6 1	..	0 0	5 5	..
Sal Acetos	per lb.	0 10	..	0 0	0 10	..
Sal Ammoniac, Brit. cwt.	41 0	..	42 0	38 0	..	
Saltpetre:						
Bengal, 6 per cent. or under	per cwt.	25 6	..	26 0	26 0	..
Bengal, over 6 per cent. per cwt.	"	24 6	..	25 0	21 3	..
Madras	"	0 0	..	0 0	0 0	..
Bomb. & Knurracheep.c.t.	"	0 0	..	0 0	0 0	..
European	"	0 0	..	0 0	0 0	..
British, refined	"	29 6	..	31 0	26 0	..
Soda: Bicarbonate, p.cwt.	10 6	..	0 0	9 6	..	
Carbonate:						
Soda Ash....	per deg.	0 1½	..	0 2	0 1½	..
Soda Crystals per ton	"	75 6	..	0 0	72 6	..
Hyposulphite..per cwt.	18 0	to	0 0	16 0	to	
				13 0		

	1870.			1869.		
Soda :	s.	d.	s.	d.	s.	d.
Nitroso	per cwt.	15 0	..	15 6	16 6	..
SUGAR OF LEAD, White, cwt.	"	39 0	..	40 0	40 0	..
Brown	"	26 0	..	28 0	29 0	..
SULPHUR (see Brimstone)						
VERDIGRIS	per b.	1 0	..	1 2	1 0	..
VERMILION, English..per lb.	3 2	..	3 8	2 6	..	
China	"	3 0	..	3 2	3 0	..
DRUGS.						
ALOES, Hepatic....per cwt.	60 0	..	160 0	60 0	..	
Socotrine	"	100 0	..	220 0	100 0	..
Cape, good	"	23 0	..	27 0	27 0	..
Inferior	"	16 0	..	22 0	17 0	..
Barbadoes	"	70 0	..	200 0	90 0	..
AMBERGRIS, grey.....	oz.	25 0	..	30 0	27 6	..
BALSAMS—						
Canada	per lb.	1 0	..	0 0	1 2	..
Capiivi	"	1 6	..	1 7	1 9	..
Peru	"	9 3	..	0 0	11 0	..
Tolu	"	2 2	..	2 4	2 2	..
BARKS—						
Cannella albaper cwt.	15 0	..	30 0	20 0	..	
Cascarilla.....	"	18 0	..	32 0	22 0	..
Pern, crown & grey per lb.	0 10	..	2 4	0 10	..	
Calisaya, flat	"	3 0	..	3 11	3 3	..
quill	"	3 0	..	3 11	3 0	..
Carthagena	"	1 3	..	1 9	0 10	..
Pitayo	"	0 10	..	1 6	0 6	..
Rcd	"	1 6	..	5 6	2 0	..
Bncho Leaves	"	0 3	..	0 6	0 3½	..
CAMPHOR, China	per cwt.	75 0	..	95 0	95 0	..
Japan	"	75 0	..	77 6	97 6	..
Refin Eng. per lb.	1 1½	..	1 2	1 4	0 0	..
CANTHARIDES	"	5 9	..	0 0	3 0	..
CHAMOMILE FLOWERS p. cwt.	40 0	..	72 6	50 0	..	
CASTOREUM	per lb.	3 0	..	30 0	4 0	..
DRAGON'S BLOOD, lp. p. cwt.	90 0	..	210 0	100 0	..	
FRUITS AND SEEDS (see also Seeds and Spices.)						
Anise, China Star pr cwt.	107 6	..	112 6	105 0	..	
German, &c.	"	25 0	..	40 0	25 0	..
Beans, Tonquin	per lb.	0 9	..	1 4	1 0	..
Cardamoms, Malabar						
good	"	10 0	..	11 3	7 8	..
inferior	"	8 0	..	9 6	5 9	..
Madras	"	5 6	..	10 0	4 9	..
Ceylon	"	2 8	..	3 3	2 8	..
Cassia Fistula.. per cwt.	13 0	..	30 0	20 0	..	
Castor Seeds	"	10 0	..	12 0	10 6	..
Cocculins Indicus	"	11 0	..	13 0	21 0	..
Colocynth, apple.. per lb.	0 4	..	0 8	0 5	..	
Croton Seeds	per cwt.	95 0	..	102 6	45 0	..
Cubebs	"	25 0	..	30 0	40 0	..
Cummin	"	60 0	..	73 0	85 0	..
Dividivi	"	12 0	..	14 0	10 6	..
Fennegreek.....	"	12 0	..	15 0	12 0	..
Gnnea Grains	"	24 0	..	26 0	28 0	..
Juniper Berries	"	10 6	..	0 0	7 0	..
Myrobalans	"	7 6	..	15 6	3 6	..
Nux Vomica.....	"	9 0	..	12 6	12 0	..
Tamarinds, East India	"	10 0	..	16 0	11 0	..
West India, new	"	10 0	..	17 0	12 0	..
Vanilla, largo	per lb.	32 0	..	37 0	22 0	..
inferior	"	25 0	..	30 0	11 0	..
Wormseed	per cwt.	35 0	..	0 0	25 0	..
GINGER, Preserved, in bond (dnty 1d. per lb.) per lb.	0 6	..	0 8	0 6	..	
GEMS (see separate list)						
HONEY, Chili	per cwt.	32 0	..	46 6	28 0	..
Cuba	"	22 0	..	36 0	21 0	..
Jamaica	"	31 0	..	52 0	30 0	..
IPECACUANHA	per lb.	5 0	..	5 2	5 6	..
ISINGLASS, Brazil	"	8 0	..	4 10	2 6	..
Tongue sort	"	4 0	..	5 3	3 0	..
East India	"	1 8	..	4 3	2 0	..
West India	"	4 4	..	4 8	3 10	..
Russ. long staple	"	5 6	..	3 0	5 0	..
leaf	"	3 0	..	5 6	3 0	..
" Simovia	"	1 6	..	2 6	1 6	..
JALAP, good	"	1 8	..	3 0	3 2	..
infor. & stems	"	0 6	..	1 6	0 6	..
LEMON JUICE	per deg	0 1	..	0 1½	0 1	..
LIQUORICE, Spanish per cwt.	0 0	..	0 0	0 0	63 0	..
Italian	"	40 0	..	60 0	43 0	..
MANNA, flaky	per lb.	2 6	..	3 4	4 0	..
small.....	"	1 9	..	0 0	2 0	..
MUSK.....	per oz.	16 6	..	32 0	16 0	..
OILS (see also separate List)						
Almond, expressed per lb.	1 1	..	0 0	1 3	..	
Castor, 1st pale	"	0 4½	..	0 5	0 5	..
second	"	0 4½	..	0 4½	0 4½	..
infer. & dark	"	0 4	..	0 4½	0 4½	..
Bombay (in casks)	"	0 4	..	0 4½	0 4½	..
Cod Liver	per gall.	5 0	..	6 6	5 0	..
Croton.....	per oz.	0 3½	..	0 4		

	1870.			1869.			1870.			1869.		
	s.	d.	s.	d.	s.	d.	£	s.	£	s.	£	s.
Essential Oils, continued:—							Oils, continued:—					
Citronelle	per oz.	0 2 ..	0 21 ..	0 21 ..	0 21 ..	0 21 ..	COP 1 er tun	37 0 ..	38 10 ..	42 10 ..	43 0 ..	
fino.....	"	0 21 ..	0 0 ..	0 3 ..	0 3 ..	0 3 ..	WHALE, South Sea, pale ..	35 0 ..	0 0 ..	49 0 ..	0 0 ..	
Clove.....	per lb.	2 6 ..	0 0 ..	2 6 ..	0 0 ..	0 0 ..	yellow ..	34 0 ..	0 0 ..	34 0 ..	0 0 ..	
Juniper	"	1 9 ..	2 0 ..	1 9 ..	2 0 ..	0 0 ..	brown ..	33 0 ..	0 0 ..	32 0 ..	0 0 ..	
Lavender	"	3 0 ..	4 3 ..	3 0 ..	4 3 ..	0 0 ..	East India, Fish ..	32 0 ..	33 0 ..	32 0 ..	0 0 ..	
Lemon	"	5 0 ..	0 6 ..	4 6 ..	7 0 ..	0 0 ..	OLIVE, Gallipoli ..	47 15 ..	44 0 ..	57 0 ..	0 0 ..	
Lemongrass	per oz.	0 21 ..	0 0 ..	0 41 ..	0 41 ..	0 0 ..	Trieste ..	46 0 ..	0 0 ..	51 0 ..	0 0 ..	
Noroli	"	0 5 ..	0 6 ..	0 5 ..	0 6 ..	0 0 ..	Levant ..	45 0 ..	0 0 ..	55 0 ..	0 0 ..	
Nutmeg	"	0 4 ..	0 8 ..	0 4 ..	0 8 ..	0 0 ..	Mozgovor ..	45 0 ..	0 0 ..	54 0 ..	0 0 ..	
Orange	per lb.	5 0 ..	7 0 ..	5 0 ..	7 0 ..	0 0 ..	Spanish ..	47 0 ..	0 6 ..	55 0 ..	56 0 ..	
Otto of Roses	per oz.	13 0 ..	20 0 ..	13 0 ..	20 0 ..	0 0 ..	Sicily ..	47 0 ..	0 0 ..	54 0 ..	0 0 ..	
Patchouli	"	6 0 ..	0 0 ..	6 0 ..	0 0 ..	0 0 ..	COCOANUT, Cochin, per ton	43 10 ..	0 0 ..	42 10 ..	43 0 ..	
Peppermint:—							Ceylon ..	37 10 ..	0 0 ..	4 19 ..	41 0 ..	
American	per lb.	14 0 ..	15 0 ..	15 0 ..	16 0 ..	0 0 ..	Sydney ..	30 0 ..	35 0 ..	35 0 ..	40 0 ..	
English	"	36 0 ..	38 0 ..	32 0 ..	42 0 ..	0 0 ..	GROUND NUT AND GINGELLY:					
Rosemary	"	1 9 ..	2 0 ..	1 9 ..	2 0 ..	0 0 ..	BOMBAY ..	0 0 ..	0 0 ..	0 0 ..	0 0 ..	
Sassafras	"	3 0 ..	0 0 ..	4 0 ..	4 0 ..	0 0 ..	Madras ..	43 0 ..	41 0 ..	40 0 ..	0 0 ..	
Spearmint	"	4 0 ..	16 0 ..	4 0 ..	14 0 ..	0 0 ..	PALM, fine ..	39 10 ..	40 0 ..	41 10 ..	42 0 ..	
Thyme	"	1 10 ..	2 0 ..	1 10 ..	2 0 ..	0 0 ..	LINSEED ..	29 15 ..	0 0 ..	27 0 ..	0 0 ..	
Mace, expressed ..	per oz.	0 1 ..	0 21 ..	0 1 ..	0 21 ..	0 0 ..	RAPESEED, English, pale ..	45 0 ..	0 0 ..	49 10 ..	49 10 ..	
OPIUM, Turkey	per lb.	26 0 ..	30 0 ..	27 0 ..	29 0 ..	0 0 ..	brown ..	45 0 ..	0 0 ..	40 0 ..	0 0 ..	
inferior	"	18 0 ..	25 0 ..	18 0 ..	23 0 ..	0 0 ..	Foreign pale ..	46 10 ..	0 0 ..	43 10 ..	44 0 ..	
QUASSIA(bitterwool)	per ton	60 0 ..	70 0 ..	160 0 ..	180 0 ..	0 0 ..	brown ..	42 10 ..	0 0 ..	38 10 ..	0 0 ..	
RHUBARB, China, good and							COTTONSEED ..	28 10 ..	31 10 ..	29 0 ..	25 10 ..	
fine	per lb.	4 3 ..	8 0 ..	4 6 ..	8 6 ..	0 0 ..	LARD ..	73 0 ..	75 0 ..	72 0 ..	0 0 ..	
Good, mid. to ord. ..	"	0 7 ..	4 0 ..	0 9 ..	4 3 ..	0 0 ..	TALLOW ..	25 0 ..	0 0 ..	35 0 ..	0 0 ..	
Dutch trimmed ..	"	9 6 ..	10 0 ..	10 0 ..	0 0 ..	0 0 ..	TURPENTINE, American, cks ..	30 0 ..	0 0 ..	29 0 ..	0 0 ..	
Russian	"	0 0 ..	0 0 ..	0 0 ..	0 0 ..	0 0 ..	PETROLEUM, Crude ..					
ROOTS—Calumba	per ewt.	22 6 ..	49 0 ..	35 0 ..	48 0 ..	0 0 ..						
China	"	25 0 ..	35 0 ..	27 0 ..	35 0 ..	0 0 ..						
Galangal	"	16 0 ..	18 0 ..	17 0 ..	22 0 ..	0 0 ..						
Gentian	"	25 0 ..	26 0 ..	19 0 ..	20 0 ..	0 0 ..						
Hellebore	"	22 0 ..	30 0 ..	22 0 ..	30 0 ..	0 0 ..						
Orris	"	50 0 ..	52 0 ..	38 0 ..	44 0 ..	0 0 ..						
Pellitory	"	58 0 ..	60 0 ..	58 0 ..	60 0 ..	0 0 ..						
Piu	per lb.	0 7 ..	0 10 ..	0 7 ..	0 10 ..	0 0 ..						
Rhatany	"	0 8 ..	0 10 ..	0 5 ..	0 10 ..	0 0 ..						
Seneka	"	2 10 ..	3 0 ..	1 6 ..	0 0 ..	0 0 ..						
Snake	"	1 0 ..	0 0 ..	1 0 ..	0 0 ..	0 0 ..						
SAFFRON, Spanish	"	52 0 ..	0 0 ..	30 0 ..	40 0 ..	0 0 ..						
SALEP	per ewt.	110 0 ..	0 0 ..	110 0 ..	0 0 ..	0 0 ..						
SARSAPARILLA, Lima per lb.		0 6 ..	0 7 ..	0 6 ..	0 7 ..	0 0 ..						
Parl	"	1 0 ..	1 3 ..	1 0 ..	1 3 ..	0 0 ..						
Honduras	"	1 1 ..	1 6 ..	1 2 ..	1 6 ..	0 0 ..						
Jamaica	"	1 9 ..	3 2 ..	1 10 ..	2 6 ..	0 0 ..						
SASSAFRAS	per ewt.	0 0 ..	0 0 ..	0 0 ..	0 0 ..	0 0 ..						
SCAMMONY, Virgin	per lb.	23 0 ..	32 0 ..	28 0 ..	32 0 ..	0 0 ..						
second & ordinary ..	"	10 0 ..	23 0 ..	10 0 ..	23 0 ..	0 0 ..						
SENNA, Bombay	"	0 21 ..	0 6 ..	0 34 ..	0 51 ..	0 0 ..						
Tinnivelli	"	0 31 ..	1 4 ..	0 3 ..	0 11 ..	0 0 ..						
Alexandria	"	0 41 ..	1 7 ..	0 10 ..	1 6 ..	0 0 ..						
SPERMACETI, refined	"	1 6 ..	1 7 ..	1 6 ..	1 7 ..	0 0 ..						
American	"	1 4 ..	0 0 ..	1 6 ..	0 0 ..	0 0 ..						
SQUILL	"	0 1 ..	0 2 ..	0 11 ..	0 21 ..	0 0 ..						
GUMS.												
AMMONIAC drop	per cwt.	70 0 ..	100 0 ..	210 0 ..	280 0 ..	0 0 ..						
lump	"	45 0 ..	65 0 ..	120 0 ..	200 0 ..	0 0 ..						
ANJALI, fine washed	"	290 0 ..	340 0 ..	320 0 ..	350 0 ..	0 0 ..						
bold scraped	"	220 0 ..	280 0 ..	240 0 ..	300 0 ..	0 0 ..						
sorts	"	100 0 ..	200 0 ..	110 0 ..	210 0 ..	0 0 ..						
dark	"	75 0 ..	100 0 ..	80 0 ..	110 0 ..	0 0 ..						
ARABIC, E. J., fino												
pale picked	"	62 0 ..	70 0 ..	78 0 ..	102 0 ..	0 0 ..						
srts, gd. to fin.	"	52 0 ..	60 0 ..	65 0 ..	77 0 ..	0 0 ..						
garblings	"	25 0 ..	45 0 ..	40 0 ..	60 0 ..	0 0 ..						
TURKEY, pick. gd. to fin.												
second & inf.	"	160 0 ..	200 0 ..	170 0 ..	210 0 ..	0 0 ..						
in sorts	"	85 0 ..	155 0 ..	90 0 ..	160 0 ..	0 0 ..						
Gedda	"	70 0 ..	90 0 ..	75 0 ..	102 0 ..	0 0 ..						
BARBARY, white	"	38 0 ..	41 0 ..	38 0 ..	45 0 ..	0 0 ..						
brown	"	70 0 ..	72 6 ..	82 0 ..	85 0 ..	0 0 ..						
AUSTRALIAN	"	20 0 ..	42 0 ..	25 0 ..	50 0 ..	0 0 ..						
ASSAFETIDA, com. to gd.	"	35 0 ..	90 0 ..	40 0 ..	95 0 ..	0 0 ..						
BENJAMIN, 1st qual.	"	230 0 ..	440 0 ..	280 0 ..	489 0 ..	0 0 ..						
2nd	"	140 0 ..	200 0 ..	140 0 ..	220 0 ..	0 0 ..						
3rd	"	50 0 ..	90 0 ..	50 0 ..	120 0 ..	0 0 ..						
COPAL, Angola red	"	80 0 ..	100 0 ..	110 0 ..	120 6 ..	0 0 ..						
Benguela	"	80 0 ..	90 0 ..	100 0 ..	110 0 ..	0 0 ..						
Sierra Leone, per lb.	"	0 4 ..	1 2 ..	0 5 ..	1 4 ..	0 0 ..						
Manilla	per ewt.	30 0 ..	50 0 ..	32 0 ..	55 0 ..	0 0 ..						
DAMMAR, pale	"	50 0 ..	55 0 ..	95 6 ..	100 0 ..	0 0 ..						
EUPHORBIUM	"	13 0 ..	14 0 ..	15 0 ..	16 0 ..	0 0 ..						
GALBANUM	"	160 0 ..	290 0 ..	160 0 ..	240 0 ..	0 0 ..						
GAMBoge, pekd pipe	"	240 0 ..	270 0 ..	320 0 ..	350 0 ..	0 0 ..						
GUAIACUM	per lb. ..	0 9 ..	2 4 ..	0 8 ..	1 5 ..	0 0 ..						
KINO	per ewt.	61 0 ..	140 0 ..	60 0 ..	120 0 ..	0 0 ..						
KOWRIE, rough	"	30 0 ..	40 0 ..	50 0 ..	60 0 ..	0 0 ..						
scrapped	"	42 6 ..	160 0 ..	63 0 ..	129 6 ..	0 0 ..						
MASTIC, picked	per lb.	7 6 ..	8 0 ..	5 6 ..	6 0 ..	0 0 ..						
MYRRH, gd. & fine per ewt.		150 0 ..	200 0 ..	190 0 ..	250 0 ..	0 0 ..						
sorts	"	80 0 ..	140 0 ..	90 0 ..	170 0 ..	0 0 ..						
OLIBANUM, p. sorts	"	68 0 ..	74 0 ..	80 0 ..	85 0 ..	0 0 ..						
amber & ylw.	"	65 0 ..	66 0 ..	70 0 ..	77 0 ..	0 0 ..						
garblings	"	18 0 ..	40 0 ..	25 0 ..	50 0 ..	0 0 ..						
SENEGAL	per ewt.	77 6 ..	90 0 ..	88 0 ..	95 0 ..	0 0 ..						
SANDARAC	"	55 0 ..	97 0 ..	72 0 ..	95 0 ..	0 0 ..						
THUS	"	13 0 ..	14 0 ..	13 0 ..	14 0 ..	0 0 ..						
TRAOCANTH, loaf	"	229 0 ..	380 0 ..	240 0 ..	400 0 ..	0 0 ..						
in sorts	"	115 0 ..	210 0 ..	115 0 ..	210 0 ..	0 0 ..						
OILS.												
SEAL, palo	per tun	£35 16 ..	0 0 ..	£40 11 ..	0 0 ..							
yellow to tinged	"	32 0 ..	34 10 ..	37 0 ..	40 0 ..							
brown	"	31 0 ..	£10 0 ..	38 0 ..	37 0 ..							
SPERM, body	"	78 0 ..	0 0 ..	91 0 ..	0 0 ..							
headmatter	"	79 0 ..	0 0 ..	0 0 ..	0 0 ..							



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